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ERRATA

- No. 22, page 40, lines 13, 14, 17, *for* Mondi *read* Mende.
 No. 27, page 45, line 16, *for* Balfour *read* Routledge.
 No. 34, page 62, line 11, *for* Inopan *read* Mopan.
 No. 34, page 62, line 35, *for* Chu Chac *read* Cha Chac.
 No. 45, page 83, line 18, *for* concave *read* convex.
 No. 52, page 106, line 3, *for* Tah *read* (Tah.)
 No. 86, page 174, line 45, *for* Caspian *read* Capsian.

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N.B.—The Numbers to which an asterisk is added are those of Reviews of Books.

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FIG. 1.



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FIG. 2.

A CHINESE BRONZE WITH SCYTHIAN AFFINITIES.

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ORIGINAL ARTICLES.

With Plate A.

China: Art.

Read.

A Chinese Bronze with Scythian Affinities.

By Sir C. Hercules

Read.

The affinities and chronology of ancient Chinese bronzes present so many difficulties for the Western student that progress in knowledge of the subject is slow. The Chinese are themselves such fervent admirers of antiquity that their reproductions of classical periods are not only popular among the educated classes, but are so accurately copied from their prototypes as to deceive even the elect. These reproductions are as a rule all that we in the West can expect to obtain, but they possess many valuable qualities for study, inasmuch as they present to us a facsimile of the original bronze, and we thus get the type, the style of art and the symbolism of the period on which they are founded. In this way, the bronze I have ventured to bring before the readers of MAN possesses qualities of design and function that in some directions carry the mind back to the Bronze Age, at whatever period the actual vessel may have been made. I found the piece in the collection of Mr. Harry Oppenheim, a keen collector of old Chinese works of art; he had bought it from a dealer, and of course it had no history. The unusual character of the design attracted me, and Mr. Oppenheim allowed me to bring it away for more detailed study.

The figures in Plate A show its general character and the greater part of the details. The lower stage is oblong, conceived on somewhat architectural lines, the four feet being human figures, over the head of each being a moulding suggesting the capital of a pilaster. The upper stage is oval, the design being in openwork, the bottom of the vessel is open, gridiron fashion. At one end is a curved handle,

and there are signs of a similar handle having existed at the other end. All the features of the design of the body are unusual, but what especially riveted my attention was the openwork frieze of animals on the upper stage.

In Fig. 1 is seen a monstrous creature, a mammalian quadruped, winged, with long neck and a feline head, who seems to be struggling with a snakelike form, portions of which are seen in front and above the middle of the back. Fig. 2 has an animal (no doubt intended for a tiger, from the wavy stripes on the body), who again is attacking a snake, the body of which fills up the spaces in the design. The creatures at the two ends are similar one to the other, and represent a bird with large raptorial claws, but with a head more like a goat, a resemblance further strengthened by the presence of two horn-like adjuncts to the head. An obvious suggestion is that they represent the Phoenix in a somewhat archaic form, and this is rather borne out by a figure in the Chinese work presently to be mentioned.

It will be seen that all these details differ widely from those usually found in Chinese art, even of an early date, and it would seem that in this vessel we have possibly a survival of a symbolism perhaps even pre-Chinese. The Chinese appear to our Western eyes as always eager to discover or invent some novel monstrous creature. But if their decorative ideas of more recent periods may be safely compared with the earlier, this should not be the true explanation. As is well known, almost every detail of the decorative scheme, even of a commonplace Chinese vase, has, or originally had, a meaning and a purpose appropriate to the object or to its use. It is hardly possible to conceive a Chinese artist finding himself in a difficulty either as to the nature of a design or as to how it should be carried out. If this be so now, and was so in early times in China, as seems likely, then we should expect to find stereotyped forms repeated constantly, thoroughly crystallized in an artistic atmosphere where the futurist innovation found no place and no sympathy or understanding. In point of fact, this is exactly what does happen.

The surface decoration and all details of, e.g., Chinese bronzes of early date (and of course their imitations), are more notable for a monotony of motive than those of any other country.

Therefore, if one applies this theory to the vessel before us, there should not only be a meaning and purpose in the selection of the animals found upon it—but prototypes should exist from which they sprang. For the former we are at present far too ignorant to have much chance of success, but the prototype should have a physical existence, and thus our fortune may be better.

I have had the good luck to find in Chinese works figures of two vessels that are comparable with that now in question. One is in the *Po ku t'u* (20th part), and is an oblong vase pierced at bottom and on all sides, standing in a tray. It might serve the same purpose as our specimen, having all its essential characters. It is described in the text as a T'ang ice vessel, and is evidently thought to have been used as a refrigerator, the food being placed on the top and the ice in the body of the vessel, and thus in touch with the air on all sides. The other example is to be found in the *Kao ku t'u*, Part X, p. 14 (Fig. 3). It resembles our figure much more nearly; the upper half is rounded, having on the sides a phoenix, tiger, tortoise and (according to the text) a dragon, the latter not shown in the figure: the base is square, covered with horizontal lines, and supported by four squat figures; it has also a straight handle on one side. It is said in the text to be a brazier for heating water or wine, and to be of Han dynasty type (206 B.C.-220 A.D.). The animals around are stated to be from the "twenty-eight heavenly mansions," and the four supporting figures to be those of Tartars. The general character and similarity in detail make it practically certain that Mr. Oppenheim's bronze is for the same purpose as the brazier figured by the Chinese author. The practical identity

of the Tartar figures and the surrounding animals would further suggest that if one be of a Han dynasty type the other is also. In any case the suggestion helps my theory as to the affinities of the Oppenheim bronze, viz., that in some respects it has clear connection with the later Bronze Age in the Far East. The architectural treatment of the base is quite un-Chinese, and at the present moment I can think of nothing nearer than Gandbara with which to compare it. Ten years ago such a suggestion would have been thought fantastic, but Sir Aurel Stein's discoveries have reduced it to a commonplace. The animal frieze again differs from normal Chinese. The winged monster quadruped in Fig. 1 is not the Chinese dragon, though he may be a prototype; the tiger in Fig. 2 is equally un-Chinese. But both one and the other can easily be recognized in the Scythian metal reliefs in Mr. Minns' invaluable work on *Scythians and Greeks*. The head of the tiger is to be found almost exactly reproduced in his Fig. 198 (Fig. 4), a gold plate from Siberia showing the griffin attacking a horse, and the quadruped and snake motive is found in Fig. 195. If, as would seem likely, the date of the Oppenheim bronze is many centuries later

than these Scythian reliefs, it is not a little singular how in the bronze certain details of treatment have survived in complete identity. The tiger's head and the peculiar style of drawing in which his grip of the victim is shown, are identical with the same features in the Siberian bronze, and in fact is to be seen throughout Mr. Minns' book. If this be so, and to my eyes there can be no doubt about it, it can only indicate an unbroken thread of traditional treatment from three or four hundred years B.C. up to the date of Mr. Oppenheim's bronze, which can only claim to belong to medieval times, at the earliest. Sir Aurel Stein's discoveries have demonstrated inter-relation and interchange of products and art motives from China to



FIG. 4.

India in the early centuries of our era. Mr. Oppenheim's bronze would seem to indicate that for centuries before the Christian era the same borrowing went on, and enriched the Chinese art with which we are familiar with Siberian motives of the late Bronze Age.

C. HERCULES READ.

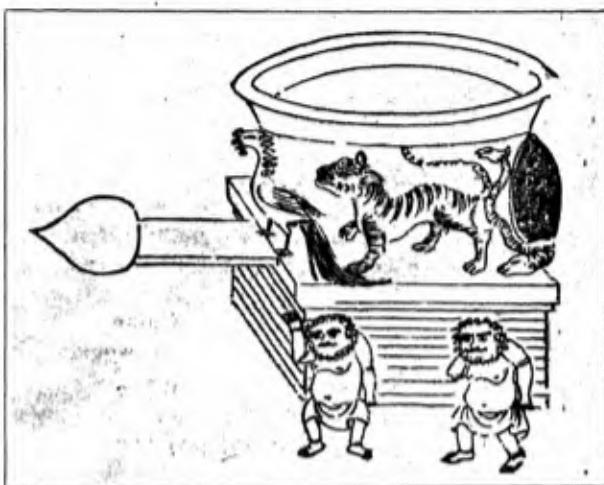


FIG. 3.

France: Archaeology.

Coutil: Lewis.

On an Allée Couverte Discovered in the course of Making Trenches for the Defence of Paris. Communicated by M. Léon Coutil to A. J. Lewis. 2

My friend, M. Léon Coutil, a well-known archaeologist of Normandy, has written to me substantially as follows:—

I have just made a very satisfactory excavation at Vaudancourt (Oise) of another *allée couverte*, 15 metres long, with a chamber at the east end a further 3 metres long, divided from it by a stone perforated by a round hole, 57 to 58 centimetres in diameter, with a slight and very shallow incised border, 4 centimetres wide, surrounding it; on the left side of this traces of a square border are distinguishable, which I must examine carefully, as they do not appear to me to extend to the right side. There are eleven supporting stones on each side, very flat, and 2 m. 40 cm. high; of these two form the wall of the small chamber and nine that of the *allée*; the latter is about 2 metres wide, the bottom is paved with large flat stones placed together. As the round and square borders of the hole look to the east and to the small chamber, I maintain that the latter was a vestibule or chamber of access. The two ends of the structure have been found in good condition, which is very unusual; at the east there was a wall of dry masonry, it is not very visible in the foreground, because I took the photograph when I had just raised some trunks of trees placed above the vestibule, for that had been turned into a room for an officer. The photograph which I send you was taken in front of the eastern closing of dry masonry, and therefore the other extremity is at the west; you can distinguish the border round the hole and part of the square enclosing it; the upper course of the dry masonry was displaced, as I have said, in moving the tree trunks which rested upon it. I have replaced it since. Two military trenches surround this magnificent *allée couverte*, which was discovered in making trenches for the defence of Paris, after the English army had been forced to retire on Amiens. The whole structure was filled with soil nearly to the top, but, as trench work was stopped in consequence of the armistice being signed



(a) VIEW TAKEN FROM THE EAST.

on the day on which I took the photograph [he says the 18th November], the soldiers whom you see in the photograph have helped me to clear it away. Eight slabs forming part of the roof had fallen into the gallery, where they were lying in four groups, each of two stones, lying one on top of the other; these have been partly raised and set against the side; they had been broken and only two were still long enough to bridge the *allée*.

From this monument I have recovered sixty lower jaws, very curious on account of certain anomalies—very often the molars have disappeared and the sockets are closed up. One asks oneself who was able to extract teeth so well in the Neolithic Age, for the dentists of that period had not the complicated pincers and instruments with which dentists have still much trouble to extract the teeth, and still more the

roots, in our times; one does not know how to explain the fact that one never finds the roots nor the teeth broken in these jaws; one of them has had a complete fracture which has reunited itself—it is splendid to see such an anatomical result.* One cranium has been scraped and another trepanned. I have found a polished axe, another broken, some small knives, four perforated beads, some flakes and a core in flint, and an antler of a stag, sawn, which had served as a handle.

I authorise you to speak of my discovery and to publish the photograph.

So far M. Coutil. His excavations began on the 15th November 1918 and lasted till the 25th, when they were stopped by frost; he hoped to continue them in April, 1919.

This *allée couverte* is an addition to a small number in or about the department of the Oise, and there only, and all as much like one another as so many peas in a pod; a special feature about it is the dry stone wall, closing the east end, but whether that formed part of the original design, I do not know; I am not aware of a similar one having been found at any of the other *allées* of this kind. I should not be surprised if it were put up at some time when alterations were made in the structure, such as those which led to the breaking up of the capstones and filling it with earth.

The orientation of these structures differs considerably. M. Coutil, quoting from M. Paul de Mortillet, mentions nine which have a well-marked ante-chamber, porch, or shrine, but in two cases the passage from it to the interior of the *allée* is a built-up opening instead of a large round hole pierced through a single stone. The porch, or, as I should rather call it, the shrine, is common enough in dolmens and *allées couvertes*, though it does not always appear to communicate with the interior, unless, indeed, by some apparently accidental chink which does not attract notice, but which might be large enough to enable the spirits of the deceased inside to come out, or for food to be passed in to them; this, as I have said, is not an uncommon feature, but the great round hole is not to be found in any dolmen outside this particular locality, thirty miles or so north-east of Paris; the nearest thing to it is in Scandinavia, but is really not quite like it, as the hole is at the bottom of the stone instead of through the middle of it.

Nine years ago I visited some of the *allées couvertes* mentioned by M. Paul de Mortillet and M. Coutil, and described them in a paper published in the *Journal of the Royal Anthropological Institute* (Vol. 40, 1910, p. 336), but I will not say more about them now than is necessary.

1. *Dolmen de la Bellée*, Boury, Oise.—This seems to be the nearest to Vaudancourt; its orientation is approximately north-east and south-west, the shrine being at the north-east end. It is on one of the side stones of the shrine at this dolmen



(b) VIEW TAKEN FROM THE WEST.

* Dr. Baudouin, Secretary of the Société Préhistorique Française, has written a note on this in the *Bulletin de l'Académie de Médecine de Paris* of 14 January 1919: "Fracture de la Mandibule guérie spontanément à l'époque de la Pierre Polie."

that a very remarkable carving appears, but that is another branch of the matter already treated of in my paper of 1910.

2. Not far from this is the *Pierre des Druides*, at Tric Chateau; oriented north and south, the shrine facing north.

3. In the same district, at Flavacourt, Oise, is the *Dolmen de Champignolles*, standing slightly north of east and south of west, with the shrine at the eastern end. The entrance here is not by a round hole, but is formed by two or three stones built up together.

4. The *Pierre aux Fées*, at Villers St. Sepulchre, Oise, set north and south, with the shrine at the north end.

Besides these there are some which I have not seen:—

5. St. Etienne, facing south.

6. Chamant, facing south.

7. "Trous aux Anglais," Epone, facing east.

8. Dampant, facing north-west.

9. Dolmen de la Justice, at Presles, Seine et Oise, facing west.

Including the newly-discovered *Allée Couverte de Hauts Louvets*, as M. Coutil now calls it, at Vaudancourt, Oise, ten in all, of which four face east, two north, two south, one west, and one north-west. With regard to the last five, which I have not seen, I am not sure that all of them are of the round-hole pattern.

M. Coutil also mentions the *Pierre Turquoise* at Presles, Seine et Oise, which I visited in 1906, and described in MAN, 1907, 74. This runs north-east and south-west and has a porch and built-up entrance at the south-west, but it is much larger internally than the *allées couvertes* of the Oise which we have just been looking at, and differs from them so much that I should not have mentioned it now if M. Coutil had not done so.

Although there are not, so far as I know, any other dolmens with large round holes exactly like those in France, we have at Lanyon, near Penzance in Cornwall, a very well-known remain called the Men-an-Tol, a stone with a hole answering as nearly as possible to them; so much so, indeed, that it has been confidently asserted that it is the last remaining stone of an *allée couverte*, but I do not think that is the case; there are no remains of any tumulus, although the stone is on a moor at a distance from any cultivation in which the materials of a tumulus might have been useful, and the stones associated with it are not such as would have been used in the construction of a dolmen or *allée*, but are pillar stones such as were used in the Cornish circles, and I think, therefore, that this holed stone and the others adjoining it originally stood in the middle of a small circle, of which, indeed, the late Mr. Dymond found some remains.

A Mr. Beesly, writing in the *Antiquary* a few years ago, endeavoured to show that the Men-an-Tol had originally been the base of a wayside cross, and had afterwards been set up on edge, but Mr. Dymond exposed the fallacies of that proposition in a subsequent number of the *Antiquary*.

At one time the Men-an-Tol was resorted to as a cure for rickets, or a crick in the back, by crawling through the hole nine times against the sun.

The fact that, while shrine dolmens exist in many places, those with the peculiar great round entrance occur only in a small district in France, tends to show that, though the ideas underlying the construction of these monuments were common to many districts, the method of carrying them out varied locally or tribally.

A. L. LEWIS.

Sierra Leone: Linguistics.

Thomas.

Prefixes and Pronouns in Limba. By N. W. Thomas.

3

There is a strong tendency in prefix languages of the Sierra Leone area to substitute suffixes for the prefixes; Kisi has gone far on the road and Bullom would have done the same had not Mendi virtually swallowed it. Limba, between Temne and the Mandingo group, is equally exposed to the influence of the latter, which seems to have been the primary cause of the change, and is substituting suffixes for prefixes; it is not, however, clear how far there has been any change since Koelle's *Polyglotta Africana*. There is no very clear evidence of the existence of classes, in the strictest sense, in the language; if we except the human class with the prefixes *o-be*, or, where there is no prefix, as in *yereme*, woman, with the determinatives *wo-mbi*, there is no class wholly or mainly confined, so far as our meagre knowledge goes, to any one kind of objects; and even the human class includes the leopard, *oseenkire-besenkire*, and excludes such words as *bapai* (*ba*), sower (from *pai*, to sow).

As usually happens, there are more classes of nouns, distinguished by their prefixes, in the singular than in the plural; each singular prefix has, moreover, two or three plural prefixes corresponding to it, so that nearly twenty classes can be formed. It appears, however, that prefixes are sometimes dropped in the singular, either dialectically or otherwise; we find *yonko*, hand, side by side with *hulonko* and *kulonko*; *titi*, tooth, is found in the forms *hutiti* and *hatiti*; several, therefore, of the singular classes may be amalgamated (how far this is true also of the *fu*-class, which has the plural forms *ta*, *ma*, *na* is not clear). It will simplify matters, therefore, to range the non-human classes according to the plurals. They are:—

Plural. Singular.

I. <i>ba</i> , <i>b</i> :	<i>ku</i> , <i>v</i> , <i>w</i> :*	<i>kutsene</i> , cotton tree; <i>batsene</i> . <i>vgtq</i> , quiver; <i>botoni</i> .
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II. <i>ma</i> :	<i>fu</i> , — :	<i>fudere</i> , groundnut; <i>madere</i> . <i>fe</i> , fish, <i>feni</i> or <i>mafeni</i> .
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III. <i>na</i> , <i>n</i> :	<i>fu</i> , <i>ku</i> , <i>k</i> :	<i>futamba</i> , beans, <i>natamba</i> , <i>kutai</i> , foot, <i>natai</i> . { <i>kia</i> , tree, <i>nae</i> (? <i>koia</i> , <i>naia</i>). { <i>kuieñ</i> , tree, <i>maeñ</i> .
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IV. <i>ta</i> , <i>t</i> :	<i>fu</i> , <i>hu</i> , <i>ku</i> , <i>i</i> :	<i>feli</i> , egg, <i>teli</i> . { <i>hulonko</i> , hand, <i>talonko</i> , { <i>kulonko</i> . { <i>iyet</i> , face, <i>tayet</i> , { <i>huyeti</i> .
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In addition to these plurals, animals, implements, parts of a tree, &c., form plurals in *-i*, *-ni*, *-ñ*, *-cñ*, *-ci*, *-ni*, &c.; it is not clear how far the forms in *n* are interchangeable with the other forms, but *banka*, house, makes, *bankei* or *bankeñ*; double plurals are, however, found in other cases (see fish, tree, above). The suffix *n* is also used in the singular, but no clear distinction of sense can be found. The example of Mendi suggests that the form in *n* is indefinite, that in *i* definite; and there is some evidence for this view. The ordinary form of the possessive (1st p. sing.) is *yama*, but we find *yaba ba yame lohq*, my good robe, where the *e* must be a contraction of *a+i*†; other examples of *i* as definite determinative are, *wunde wuturie ka bui bu*, he sat by the fire, *owatei kon ton*, the man is eating.

* The change from *g* to *b* may be derived from *fulu*; *b* is the plural initial of words beginning with *ü*, *ø* or *w* in the non-human classes.

† See also example (*b*) on page 8.

This use of *i* as a definite determinative in the singular suggests that the plural forms in *i* are also definite; there is, however, little or no sign that such is the case. *Binde ni kaba ba baleñ ba cepo*, they wondered at the things that were told; *ba bo to yalen ba*, I will let down the nets, on the other hand, are clear cases of the *i* plural with a definite sense.

There is also a certain amount of evidence for the view that the definite determinative of the *ho* class is *ha*; some examples are given below; here too, however, the data are insufficient.

In some cases nouns with suffix plurals appear to have the same prefix in singular and plural; it is possible that (a) one prefix has become inseparable and also fixed the determinative, or (b) that, as in Wolof, the pronoun is becoming assimilated to the initial consonant of the noun, originally without prefix; we find, e.g., *belu*, ship, *beluin*, with *ba* as determinative for both, *belu baite*, one ship, *beluin bale*, two ships; *tampa*, word, has *ta* in singular and plural. There is a general tendency to treat an initial letter as a prefix; *foti* now has a plural *toti* instead of *tafoti*. Some nouns with suffix plurals, however, have determinatives with initial consonants differing from the initial consonant; *senkele*, month has *wu-bi*, like *yereme*, woman, in the human class, which has *wo-mbi*; *keme*, hundred, with *ka-mbi* assimilated in the singular only; as an imported word it probably took a determinative for the singular only in the first case. Other nouns in this class are: *selu* (*wo*), lake, *yale* (*ba*), net, *fanka* (*ho*, *ko*), crowd.

Nouns beginning with a nasal consonant take *hi* as a determinative in singular and plural; e.g., *nta*, thing (alternative form *kinta*), *niboro*, parable, *mbo*, knife.

The determinatives (a) follow the noun, and may be repeated (b) before or after the adjective; (c) the possessive is used both with or without determinative; in certain cases another particle appears to replace them (d) as a subject to a verb or (e) as prefix to a predicative adjective; (f) assimilation of the vowel occurs in some cases:—

- (a) *bonda wo hacin* (vocative), daughter.
- (b) *funka homandi komandi ba beya ni*, crowd great it came to hear him; *tabigidi tatai te*, villages two the.
- (c) *hulongo nama ha petino nona hohunte ha*, hand his it (was) left whole as the one it (or the); *hulongo ho kanda*, hand thy.
- (d) *kuta'ba won kon kufuse*, paper the it is white.
- (e) *mubili mu kanama mu sikigkoi mufuse ni nakalekale*, dress the his it became white and shining (*na* is possibly a verb here).
- (f) *no huraka ha adimbo*, this stone is heavy.

It is clear that the prefix and determinative are usually identical or nearly so; that where there is no prefix the determinative may be selected (a) by assonance (b) in accordance with a dropped prefix or (c) on some ill-defined class principle.

The pronoun is usually identical with the prefix; but, as in (b), *ko* may take the place of *ho*; in (c) the form *ha* may be regarded as the pronoun to the verb *petino*, but it is more difficult to interpret the final *ha* in this way, though such forms as *mama*, *wowo*, *kiiki* (this) show that a reduplicated form, equivalent, perhaps, to prefix + pronoun, is in use; in *ka foti nama ha*, from his own mouth, however, we have an example that negatives this interpretation and suggests that assimilation only is at work; as is seen in (b) the form *ko* is used as the pronoun in place of *ho*.

In the human class the pronoun corresponding to the determinative may be used, *batitini be fuñ*, the fishermen were gone, or a reinforced form, *bayi mbe bindé kei*, the slaves go (cf. Sella, *wayi nde se*, the slave goes). In the objective case *wan*, or *ni* (sing.), *ben*, *bende* (plu.), are found: *wunde ni wun*, he said to him *bun ceci bindé foma*, they destroy them all. Some nouns take the pronouns of this class with

the prefixes of their own class : *kuten* (*wo*) dog, *naten* (*be*) ; *okute* and *ten* are variant forms.

In the non-human classes the class prounoun is commonly used : *konto ko mandi cen ka keken kobena*, hunger it comes reach country that ; *mande man ma kin ka kubula go*, water the it is in calabash ; *bobun bo kin ka sumba ha ka poti*, fire it is under the pot below. But *wun* is used in the singular impersonally, *wun duñkuno kenden ba* . . . , it is given to you to . . . ; *mun* is used in the plural of two nouns with different prefixes, *mu' ko pucio ni*, they (*furu ba, mandi ma* = wind and waves) obey him ; so, too, *mun foma*, (they) all. It is worthy of note that *mun* is used in Fula in a general sense, but apparently only as a possessive adjective with plural *mumen* ; *ko* and *kam* are subject and absolute forms ; the question of which language it really belongs to is an open one ; it agrees in form with both Limba and Fula pronouns. But as Westermann records it in the form *muñ* from Sokoto, it seems to be a Fula word ; *kam*, a general singular prounoun, has in like manner been borrowed by Kanuri.

In certain cases the prounoun appears to be omitted : *ndasi ki kosen beboi ter-ghoi*, the herd of many swine was feeding.

Generally speaking, however, prefix = determinative = prounoun, and on the whole it seems that Limba, so far as syntax goes, comes as near Bantu as does Bullom, and cannot consequently be omitted from any enumeration of semi-Bantu languages that regards as the criterion the existence of noun prefixes repeated to show the concords of adjective, prounoun, and verb.

N. W. THOMAS.

England : Archæology.

Passmore.

Wayland Smith Cave, Sarsen Stones at Ashdown Park, Berks, 4 and Avebury, Wilts. By A. D. Passmore.

Some years ago an examination of the large area covered by Sarsen stones at Ashdown Park (which are in a natural position, and not placed in lines as stated by Waring and other authors) was undertaken by the writer with the idea of finding flat and comparatively smooth-faced stones similar to several now forming part of Wayland Smith Cave (a chambered long barrow roughly two miles north of the stones and built from them). A careful inspection of scores of large stones proved that a flat or smooth surface does not exist here naturally, the surfaces are lumpy and irregular. At the cave, the S. stones of the E. and W. chambers, and the E. stone of the E. chamber, together with several in the passage leading from the edge of the mound into the chambers, are flat and smooth on their inner face. After the study mentioned above, the writer is convinced that they have been pounded into shape by the same process as those at Stonehenge. On the stone forming the southern upright of the entrance to the W. chamber are two cup-shaped hollows (facing the passage and low down) almost touching each other and roughly 3 inches in diameter ; whether these are part of the old surface of the stone deliberately left by the ancient builders or are artificial is not apparent.

A similar survey of the natural area of Sarsen stones near Avebury, and the stones of the monument itself, indicates that the large upright stone on the S. side of the "Cove" in the N. circle has also been worked into a rectangular shape curiously like the uprights of the trilithons at Stonehenge. The evidence in this case is strengthened by the occurrence of a part of the old brown skin of the stone : this on one side remains as far as it agrees with the shape desired, beyond this it has been toolled off, leaving an irregular line between the two different surfaces which is plainly seen on two sides of the stone. No other stone at Avebury shows the slightest sign of working ; all are rough and lumpy as those in their original

position on the downs above. Both the above monuments have hitherto been looked upon as rude stone erections formed of unhewn rocks.

It is hoped to give this new evidence in greater detail in a future number of *The Wilts Archaeological Magazine*. A. D. PASSMORE.

Trobriand Archipelago.

Malinowski.

War and Weapons among the Natives of the Trobriand Islands.*

5

By Bronislaw Malinowski.

The natives of the Trobriands were neither cannibals nor head-hunters, and therefore lacked the two inducements to warfare typical of Papuasia and Melanesia. Nevertheless they were keen on fighting, and conducted systematic and relentless wars. Warfare was, however, carried out with a considerable amount of fairness and loyalty, there being strict rules of conduct which were scrupulously observed. They never practised nocturnal raids on another village—taking it by surprise and ruthlessly murdering all inhabitants in their sleep—a form of warfare very popular among the majority of Papuan tribes. Nor would they invite a party from another place and murder them treacherously. They never fought without warning, nor would they fight at night, and though complete victory—death of the enemies and the destruction of their village—was the ultimate aim of a war, the mere fact of fighting as a sport, and the glory derived from a display of daring and skill, were an important incitement to warfare.

The Trobriand Archipelago, and in particular the main island, Bwoiowa, was divided into a number of districts, which were at war with each other. The most important pair of such districts potentially at war were Kiriwina, with the capital village of Omarakana, and Tilataula, with its capital Kabuaku. Between these two districts relations were always strained. A row over gardens, pigs, women, a breach of etiquette, or suspected sorcery would result in a preliminary fight on the spot with light weapons, such as sword clubs, throwing sticks, light spears, or walking-sticks, which the natives always used to carry about with them. This might be smoothed over or it might lead to a formal outbreak of war. In the latter case both parties would muster their forces, the chiefs of Omarakana and Kabuaku sending word to all their adherents to appear at a certain date in their respective capitals. Each assembly would be addressed by its chief, after which coconuts would be distributed ceremonially and scraped, all the men anointing themselves with coconut grease. The warriors of the belligerent districts would now remain in the capital till the end of the war. Midway between the two capital villages a place was selected and a circular arena cleared, which would be the theatre of fighting. The opponents ranged themselves opposite each other, the warriors standing at a distance of some thirty to fifty meters apart and throwing their spears. Behind the warriors stood or sat the women, helping the men with water, coconuts, sugar-cane, as well as with verbal encouragement.

The only weapons used in such regular fighting were the spear for offence and the shield for defence. The spears of the Trobriand islanders were all of the same type—stout round points without barbs. Barbed spears were imported sometimes from the d'Entrecasteaux Islands,† but they were seldom (or, perhaps, never) used

* Fighting and all that is connected with it is a thing of the past in the Trobriand Archipelago, as in practically all the districts of British New Guinea. Therefore this account is given in the past tense. The social organisation of the Trobriand natives and many other features of their tribal life have been described in Dr. Seligman's *Melanesians of British New Guinea*, Cambridge, 1910, to which treatise the reader is referred.

† More in particular from the neighbourhood of Dawson Straits, the Amphlett group, and parts of Goodenough Island.

in regular warfare. The spears were of varying size—the longer, the lighter the wood. The shields were made of acacia wood, and were fairly thick, but never so stout as to be entirely spear-proof, since many of them split in the fight. They were of varying sizes, sufficient to cover a man's body, the legs being exposed, and the art of protecting the lower extremities by skilful jumping was one of the important accomplishments of a successful fighter.

Very seldom, and only in the case of very brave and distinguished warriors, were the shields painted. Thus during the last serious war between Omarakana and Kabuaku, in 1899, only two or three men had their shields painted, and both Numakala, then chief of Omarakana, and Touluwa, his successor, had only plain wooden shields. To have one's shield painted was a challenge, since it was a great honour to split such a shield or to kill such a man. Therefore a painted shield attracted many more spears than a plain one, and it was distinctly dangerous to use this form of bravado. One of such shields used in the above-mentioned war showed as many as fifty-six spear marks. The warriors were decorated with exactly the same feather head-dress as is used in dancing (white cockatoo feathers stuck into the hair, over-topped by a red plume), and they were painted, face and body, with various black and white patterns.

Fighting lasted as long as both parties could resist the onrush of their opponents. When one party had to flee, the road to its villages was open, and the enemy would rush on killing men, women, and children indiscriminately, burning the village and destroying the trees. The only remedy for the defeated party was to abandon their villages and to fly for life into another district. As a rule, practically everybody, especially the defenceless ones, would succeed in escaping. Thus, in 1899 about a dozen villages were destroyed, and the vanquished had to remain homeless for a time. The main village, Omarakana, was not rebuilt before a formal atonement ceremony had been held between the victors and the vanquished, the latter having been living in a provisional village some six miles to the south of their own village.*

In order to understand this lenient and conventional character of warfare one must remember that all inhabitants of the Trobriand Archipelago belong to the same tribe, all speaking the same language, having exactly the same customs, intermarrying, participating mutually in all festivities, etc. It was in consequence rather a form of social "duel," in which one side earned glory and humiliated the other, than warfare conducted to obtain any decisive advantage, economic or other.

One very important factor of warfare has yet to be mentioned—war magic. As in all other activities depending on chance, in warfare magic was considered absolutely indispensable. In each belligerent district there was a family of experts in war magic, whose members handed down from generation to generation the sacred formulæ. When all the men were assembled at the chief's bidding in the main village the magician *coram publico* chanted over the shields so as to impart to them the power of warding off all spears. He chanted over some aromatic root (wild ginger root?), and went along the ranks spitting it all over the men so as to make them strong, enduring, and fierce. Later on, after the fighting arena had been cleared in the bush, the magicians of both sides charmed it over, which had the inevitable effect of making the opponents run away. Obviously, however, one magic was always much more efficient than the other, since always only one side fled! The same end—putting the enemy to flight—was also obtained by binding the branches of the *kuebila* (a sacred bush with aromatic leaves) which grows on the main place of practically each village. Such was the official war magic, practised by a specialist for the benefit of the whole community. The natives were

* Comp. Seligman, *op. cit.*, pp. 663–668.

deeply persuaded that the successful issue of a battle depended largely upon the proper performance of the official magic. Besides this, almost everybody knew some formulae, which were privately recited by each over his own shield and spear.

The "ceremonial" weapons, such as sword clubs, walking sticks, and throwing truncheons were used in village brawls only, and never in regular fighting. This type of weapon, very widely distributed over the South Seas, and well represented in all museum collections, deserves a few words of explanation. It illustrates well one of the typical features of the South Sea Islander—his ruling passion for display. In fact, the efficiency of these weapons is distinctly subordinated to their decorative effect. The large sword clubs of the Trobriand natives, made of heavy and hard wood, are carefully and elaborately fashioned and decorated. Their fine forms, the proportions between head, handle, and blade are no less artistic than the (sometimes perfect) carving, which runs along the ridges and covers large portions of the blade. Such arms would be used during festivities, mortuary ceremonies, dancing gatherings, great annual feasts, and all the other numerous occasions on which large parties from various villages and districts assembled. They would be used for decoration normally, and would be noticed as such and much admired, and their use for purposes of aggression would be occasional only.

B. MALINOWSKI.

REVIEWS.

India.

Underhill.

The Hindu Year: A Primer of the Hindu Calendar of Maharashtra. By M. M. Underhill. Bombay: Bombay Tract and Book Society. Oxford: B. H. Blackwell. 1918. Price 8 annas.

6

This pamphlet contains a collection of notes on the Hindu Calendar of Western India. The authoress has been assisted in the compilation by native scholars. The scheme of the Primer is to give a sort of almanac of the Hindu year, with some notes on certain Fasts and Festivals, which contain some interesting information. The book, though its scope is limited, seems trustworthy, except for some errors in the transliteration of Marāthī words. It will be useful to newcomers in the Bombay Presidency.

W. CROOKE.

Linguistics.

Johnston.

A Comparative Study of the Bantu and Semi-Bantu Languages. By Sir Harry H. Johnston, G.C.M.G. Oxford: Clarendon Press. 1919.

7

This book has been awaited with impatience by all Bantu students; but the critic is still considerably handicapped by the knowledge that the most important part, "The analogies and comparison of the phonology and word-roots and a comparative examination of the syntax, together with the conclusions to be derived from 'this evidence,'" has been reserved for Vol. II, still latent within the penetralia of the Press.

The volume before us contains an enormous mass of material arranged in a very convenient form for reference and comparison. Between Bantu and Semi-Bantu we have, counting the sub-headings (2a, 2b, &c.), well over four hundred vocabularies. These are not all equally complete, and a few are quite blank, or nearly so; to be filled, no doubt, in time for the second edition, to which we may confidently look forward. The blanks, except 8, Kishashi and Kirori, and 44a, Bozhwa (Lake Mweru) are chiefly to be found in the Congo basin and the area to the north-west of it, including the Cameroons. (We have, for typographical reasons, adhered to the ordinary spelling of the above names, while offering no opinion on the system of notation adopted by the author.)

The discussion of the Semi-Bantu language must be left to Mr. N. W. Thomas and others who have made a special study of West African speech. The inclusion among these, not only of the Cameroons, Cross-River Group and the Temne and Bulom of Sierra Leone, but of Jarawa, Avatime, Gurmana and others equally unsuspected, is a highly interesting feature.

The three introductory chapters (pp. 1-44) give us a foretaste of Vol. II and contain much important and some highly disputable—or at least certain-to-be-disputed—matter. The question of notation and the whole of the phonetic section will have to be dealt with by experts in that kind; but I cannot forbear touching on a few points which force themselves on the attention even of a non-phonetician. The terms "stress," "accent" and "pitch" seem to be very loosely used on p. 41, and surely the importance of tones in the Bantu languages is somewhat understated; while the rule of stress on the penultimate is not quite so uniformly prevalent as the author's words would lead one to suppose. The case of Ganda in particular calls for some comment. It is not alone in keeping the main accent on the stress-syllable, whatever suffixes may be added (this also takes place in Yao, Sango, Konde, Kongo and perhaps in other cases); but its whole method of enunciation produces, when contrasted with Swahili, Yao or Nyanja, a curious—one is almost tempted to say a non-Bantu effect. I have sometimes wondered whether this was due to Hamitic influence, which Sir Harry Johnston emphatically denies (p. 26, note).

It is also a little disconcerting to find the cerebral and dental *t* (which are presumably meant) contemptuously swept aside as "slurred or eccentric pronunciations . . . of no etymological importance," and the uvular Arabic $\ddot{\epsilon}$ called a "velar *g*." One cannot help suspecting that the author has, here and elsewhere confused two distinct sounds. The Arabic $\ddot{\epsilon}$ (which he denotes by γ) does not, so far as I am aware, exist in any Bantu language except Zulu and Xosa (e.g., *isi-rele*, in Maclarens notation, "a stabbing assegai"). Now, in Shambala and other languages of Groups D and E (pp. 113-120), we find various words written with this same symbol: *ndoywa* (witchcraft), *yulo* (yesterday), *-yenda* (go), and, we may add, *yembe* (hoe), which has been left blank in column 19. This is really the voiced velar fricative—the voiced sound of *x* (or, as Sir Harry prefers to write it, *x*)—spelt *gh* by Archdeacon Woodward. The latter, it must be admitted, has contributed to the confusion by the definition given in his *Collections for a Handbook of Shambala* (p. 2): "Gh is formed in the throat and sounds 'something like the Arabic $\ddot{\epsilon}$ approaching that of a very deep *r*. The German missionaries now use the Greek gamma to express it.' But Roehl, in the most authoritative grammar of Shambala yet issued, calls it "stimmhafte gutturale Frikativa" (Meinhof more accurately classes it as velar), evidently meaning thereby the sound of *g* in the North German pronunciation of *Sage*. This is confirmed by inquiry from those who have heard the language spoken; and it is quite possible for even an acute observer, without a scientific training in phonetics to be mistaken as to the point where the sound is produced. This detail may seem unimportant but I have dealt on it at some length, because of a fear that undue contempt for what Sir Harry considers pedantic accuracy in the definition of sounds may render his whole foundations insecure. In his strictures (p. 37) on "certain German philologists" who suppose γ to be "the parent of the modern *g* or *w*," he takes no notice of the fact that the sounds which he and they mean by γ are entirely different. Nor can we altogether acquit him of vagueness, when we read that "the guttural γ was probably absent from Old-Bantu, not having as yet arisen from the slurring of *g* or the faecalising of *w*." Does he mean to suggest that a sound like $\ddot{\epsilon}$ could arise from the "slurring of *g*?" Had ancient Arabic ever a *g*

which was thus slurred? And how do you faecalise *w*? Neither does the voiced velar seem a likely sound to be produced by the slurring of *g*; if so, it would be hard to account for its comparative infrequency. It survives in Shambala and some of the neighbouring languages—elsewhere we find it replaced by *g*, *dz*, *j*, *z* or the glottal stop, if not dropped altogether; e.g., *yembe*, *genube*, *dzembe*, *zembe*, *yembe*, *embe*. Nor, again, is it clear how Meinhof's hypothesis of three primitive voiceless stops and three primitive voiced fricatives (*Lautlehre*, pp. 25, 28) can fairly be described as a theory attributing to the Proto-Bantu "some degree of vagueness in consonantal utterance." The examples by which this assertion is supported are not happily chosen: Meinhof nowhere derives "the modern *w*" from *y*, and what he says about *x* (*x*) and *k* is the exact reverse of what is here credited to him.

Sir Harry Johnston's latest conclusion as to Bantu origins is that the parent speech grew up "in the very heart of Africa, somewhere between the basins of the 'Upper Nile, the Bahr-al-Ghazal, the Mubangi and the Upper Benue.'" There seems no reason to doubt his conviction that the evolution of this language-family "can be compressed within a period of about 2,000 years"—and we shall, no doubt, find in Vol. II a statement of the grounds on which it is based. The time does not seem too short for the differentiation of unwritten tongues when one takes into account the migrations, conquests and dispersions which at various times have favoured the process. Sir Harry thinks, however, that the slight amount of change which appears to have taken place since the 16th century necessitates recourse to a "catastrophic theory—Nature—I believe—proceeds per *saltum*, alternately with slow progression." But I think he has minimised the amount of change which has taken place. "By searching Portuguese records in regard to the Kongo or 'Karanga' tongues we do not find a great difference between the speech of the '16th and 17th centuries and the speech of to-day'" (p. 27). But the evidence for Karanga seems to consist chiefly of single words; and Brusciotto's *Kongo Grammar* (1659) certainly shows some important differences, e.g., the infinitive prefix *ku-* disused at the present day.

The point would not perhaps be of much importance, but that it has led to some rather hazardous generalisations about the Romance languages, which are not really necessary to support the argument. In connection with this process of differentiation, we come upon a perplexing reference (p. 37) to "Swahili Arabic" "with the regular intercalation of vowel and consonant," as being "at the opposite pole to Maghribi Arabic, which is mainly a collection of choking consonants." This suggests that there is a distinct dialect of Swahili Arabic, in which we find, e.g., *alasiri* for *al-asr*, *labuda* for *labdu*, *esherini* for *'ishrin*, &c. But this is not the case: the words are so pronounced when introduced into Swahili; but those (only educated persons, as a rule) who speak Arabic do so with the usual pronunciation—or at any rate without so much departure from it as to constitute a separate dialect, and certainly without "intercalated vowels." That distinction, however, might no doubt be accorded to the Arabic (called, I believe, in Swahili, *Ki-nubi*) which is spoken by the Nubian troops in Uganda and the Sudan.

Sir Harry thinks that the undivided Bantu must have been "settled in the 'Nile Valley north of the Albert Nyanza'" and have remained there "till at least 'as late as three or four centuries B.C.—late enough to have been in full possession 'of goats and oxen and to have received the domestic fowl from Egypt or Abyssinia."

The argument is striking, but not quite conclusive. *Kuku* (by-the-bye, what is the authority for saying that it "is very like the early Persian names for fowl"?) might very well in its origin be an onomatopoetic word, which could have arisen independently among the various tribes to which the fowl was successively introduced at a later date, or have been passed on with it. And we have to account for the

divergent groups found in the western half of the continent. Some of them, apparently isolated (*e.g.*, 86, Lujazi *kiari*; 89, Herero *ondera*), or found in a few contiguous languages, as 98, Mbundu, *sanji* (derived from *sanda*, "scratch") may be due to the principle of *hlonipa*. But we have two fairly large groups—represented by the forms *nzolo* and *nsusu* respectively—on which we shall be glad to hear the author's comments in Vol. II. If the latter is to be referred to the root *-kuku*—and at present further evidence is wanted for the sound-shifting—it must represent a very old divergence. The distribution of the stems *-taba* and *-kombo* for "goat" is also a matter which calls for inquiry.

Some might be disposed to question the inclusion of 126, *Lumbila* (or ancient Bushongo) among the Bantu languages. Prefixes (p. 450) are "almost lacking" and, so far as they exist, might have been acquired, as the non-Bantu Mbugu of East Africa acquired them. The few similarities revealed in the vocabulary are not enough to establish a relationship without exhaustive examination of fuller materials than seem to be available at present. We can only hope that a speedy removal of all obstacles to the production of the second volume will enable us to congratulate the author on the successful completion of a life-work.

A. WERNER.

Anthropology in Alaska.

The Museum Journal (University of Pennsylvania), Vol. X, Nos. 1 and 2, March–June, 1919.

8

This double number has some fine coloured illustrations of war helmets, clan hats and ceremonial headdresses of the Tlingit, in southern Alaska, obtained from chiefs of different clan divisions and house groups by Mr. Louis Shotridge (himself a Tlingit), during his expeditions for the museum. He says:—

The house groups have their definite order of rank within the divisions of clans, and are characterized by ownership of special crests. The animals of both land and sea and the birds also are used as individual house group emblems or crests; these are usually represented in carvings and paintings on house pillars, batons, helmets and ceremonial hats. The pillars bearing the crests were placed in council houses while the other objects of this class were used only on appropriate occasions such as important conventions or potlatches, peace dances, in wars and in all formal ceremonies. They are classed as community property, and unlike personal effects, each descends from a man to his sister's son. . . . War helmets were ordinarily designed to represent the crests of the ancestors from whom the paternal grandfathers of the warriors who use them had descended.

These crests were not necessarily those of the clans who now own them, but were sometimes taken in war as a spoil. A helmet became an historical record of wars or ceremonies; eight ceremonies were necessary to bring it up to the standard.

The Under-Sea-Grizzly-Bear helmet was made for Daqu-tonk of the Kaguaritan clan of Chilkat. The crest was originally claimed by the Tsimshian Tay-quadi clan, which like many others was fast disappearing, and had Daqu-tonk neglected to uphold this crest, it might have been completely lost, which would have been a disgrace for the other grandsons of Tay-quadi.

The Barbecuing Raven helmet (illustrated) was carried through only two ceremonies and then fell into the hands of another clan, until the daughter of the chief, having married the rival, persuaded him to return it to her father. But, "it was kept in the bottom of the clan chest. It never saw real service. It was called a helmet because it was made preceding the war it had caused, and it was brought out during the councils to be pointed to as the goal of the clan's efforts." These and other details which Mr. Shotridge was able to collect among his own people show how important it is to obtain full information on objects obtained for museums. They are almost worthless unless their entire history is known.

The painted wooden plaques on three ceremonial women's headdresses are fine specimens of carving. "One, representing the sea-lion, has been recognised as a clan possession, because it was made for a young lady who happened to be the

"only right heir to the head chief office of her clan, when an important ceremony "was to be performed."

In a second article, Mr. Shotridge begins an account of the Tsimshian of the Naas and Skeena rivers, and has a fine photograph of a Naas chief in ceremonial dress, wrapped in a fringed Chilkat mantle and wearing a high carved headdress, the general effect recalling that of some of the sculptured figures of Central America. *Note.* He also gives a view of the carved house-poles at Git-lak-temiksh, the last Naasman town up the Naas river. They are so much like those at Hazelton on the Skeena that they may have been carved by the same man, more than forty years ago. It is to be hoped that Mr. Shotridge may be able to continue his good descriptions of the valuable material he has collected. He has also the wonderful Indian manual capacity and has made exquisite models representative of the life of the northern folk and their surroundings.

An article by H. U. Hall illustrates an example of the Marshal Islands chart, presented to the museum by the Hon. John Wanamaker. It was obtained by R. L. Stevenson during a voyage in 1890, and was described by Mrs. Stevenson in *The Cruise of the Janet Nichol*. It is composed of laths (supposed to show winds, currents, and days) with cowries attached, to represent the islands, and is 49 inches long and 29 wide. The first account of these charts is said to have been that of Dr. Gulick, a missionary, in 1860. Comparison with those in other museums should result in more definite knowledge of their meaning.

Baskets in coiled weave, by the Washoe Indians of Nevada, are well illustrated, and so are those in twilled weave from the Chitimacha of Grand River, Louisiana. The later people were almost exterminated in the 18th century, but retained their caste system, with a distinct noble class.

The regretted death of Theodore de Booy in February is announced in a note. He was an enthusiastic investigator of American archaeology and ethnology. His last trip was to Venezuela for the University Museum. A. C. BRETON.

ANTHROPOLOGICAL NOTE.

ACCESSIONS TO THE LIBRARY OF THE ROYAL ANTHROPOLOGICAL INSTITUTE.

9

(*Donor indicated in parentheses.*)

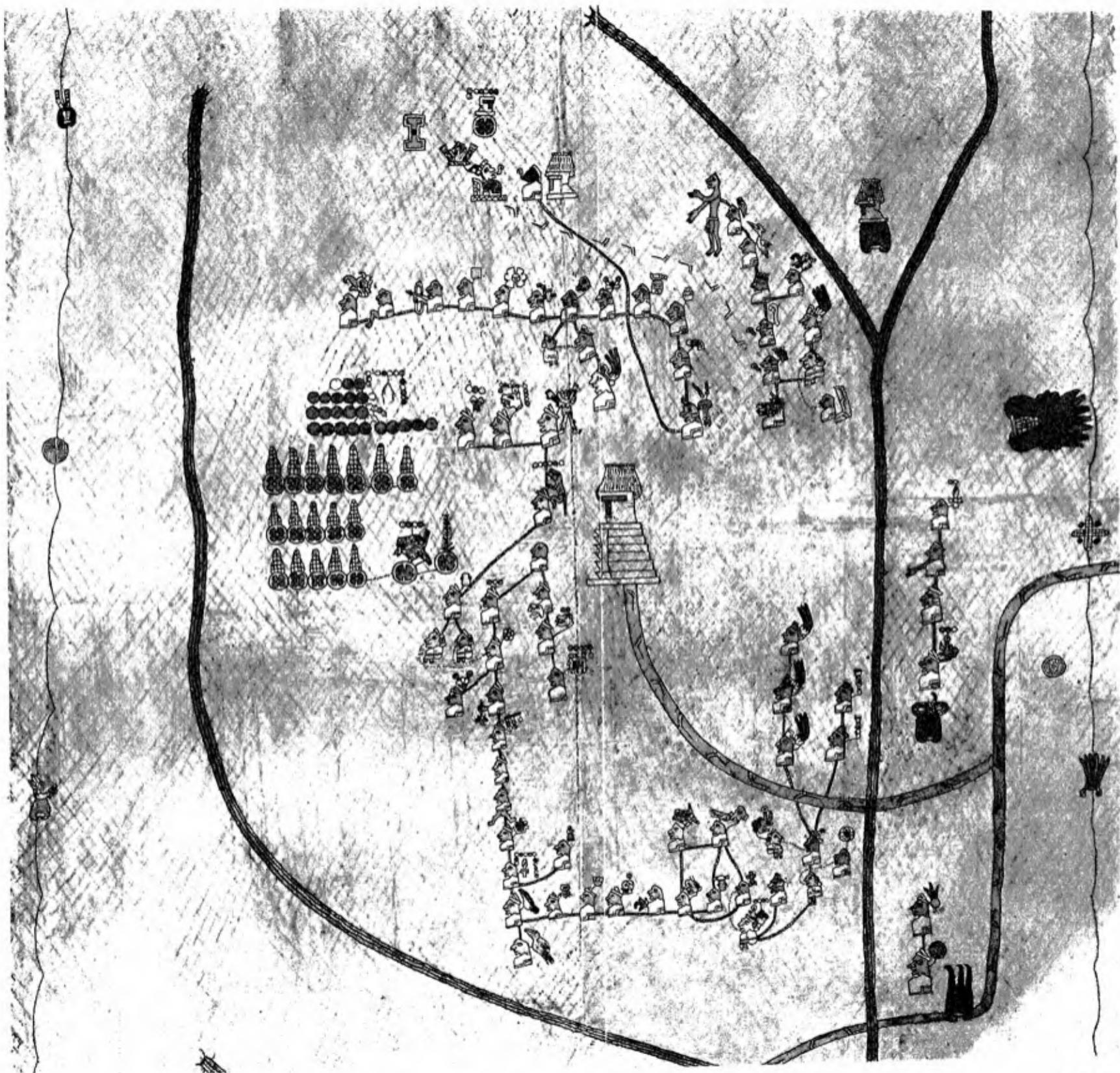
The English Convict, a Statistical Study. By Charles Goring, M.D., B.Sc., with an introduction by Prof. Karl Pearson. Abridged edition. $9\frac{1}{2} \times 6$. 275 pp. H.M. Stationery Office. 3s. net. (The Controller.)

Pre-Palæolithic Man. By J. Reid Moir. $10 \times 7\frac{1}{2}$. 67 pp. Illustrated. W. E. Harrison, Ipswich. (Publisher.)

L'époque d'Ananino dans la Russie Orientale. By A. M. Tallgren. 10×7 . 201 pp. Illustrated. K. F. Puromiehen Kirjapaino O.Y. Helsingfors. (The Author.)

The Mystery of Easter Island. By Mrs. Scoresby Routledge. 9×6 . xxi + 404 pp. 11 maps and plans. 119 plates (8 panoramic views and 2 in photogravure) and 17 line-drawings. Sifton, Praed & Co., Ltd. £1 11s. 6d.. (The Publishers.)

Unexplored New Guinea. By Wilfred N. Beaver, with an introduction by A. C. Haddon. 9×6 . 316 pp. 32 illustrations and 4 maps. Seeley Service & Co. 25s. net. (The Publishers.)



ANCIENT MEXICAN PICTURE-MAP IN THE BRITISH MUSEUM.



ANCIENT MEXICAN PAINTING ON CLOTH.

ORIGINAL ARTICLES.

Mexico.

With Plates B 1 and B 2.

Breton.

An Ancient Mexican Picture-Map. By A. C. Breton.

10

The Manuscript Department of the British Museum possesses a valuable and interesting relic of ancient Mexican art,* a picture-map (Plate B 2) drawn in colour on a piece of woven material formed of two strips sewn together, and measuring 180 cm. by 105 cm. Plate B 1 shows the middle half of this, from a careful facsimile copy, half the size of the original, made by Miss A. Hunter, by permission of the heads of the Department. The stuff is thin and soft, woven in a diaper pattern, the texture of which is shown in Fig. 1 and is in fairly good condition. Small pieces of similar material could still be obtained twenty years ago from Indian women near Zacatlan at the northern border of the State of Puebla, not far from the place where this specimen is said to have been found.

The Museum acquired the map in 1876 from Mr. H. Stevens, accompanied by the following letter to the Hon. Simon Stevens, dated United States Legation, Mexico, 5th June, 1872 :—

MY DEAR SIR,—In the year 1865 or 1866, during the subsistence of the so-called Empire of Mexico, Colonel Juan Bautista Campos was sub-prefect of Huauchinango, a district now forming the northern portion of the State of Puebla. Having undertaken the exploration of the extensive uninhabited regions of that district, with a view to their colonisation, Colonel Campos discovered amidst the thick forests the ruins of an ancient Indian city named Metlaltoyaca, of the same general character as the other ruins in the adjoining State of Vera Cruz.

By order of the Emperor Maximilian a scientific commission was sent to explore these ruins. Their report, with several illustrations is to be found in the Memoir of the Department of Public Works for 1866. Many idols and other curiosities from these ruins were placed in the Museum of Mexico. Others were sent to Europe with the personal effects of Maximilian. Colonel Campos, the discoverer, retained for himself, as the most curious trophy, a hieroglyphical map, which, according to his account, was found in a stone chest which served as pedestal to a large idol, in the edifice which seemed to have been the principal temple. This he retained in his possession until April, 1871, when, being in urgent need of money, he sold it to me for 200 dollars, and I have now ceded it to you for the same sum.

Colonel Campos was introduced to me for the purpose of treating of this matter, by the distinguished Judge Zerecero of the Supreme Court, and from the testimony of other persons, I can have no doubt of his trustworthiness. Moreover, an accurate copy of this map has been placed in the Library of the Mexican Society of Geography and Statistics, the interpretation of which has been attempted without success by the most eminent antiquarians of that body.

I am, Sir, very truly yours,

PORTER C. BLISS.

Publication of this letter is desirable, to place on record the provenance of the map. There is no reason to doubt the accuracy of Colonel Campos' account. Metlaltoyaca can be reached from Huauchinango in 2½ days of riding, past Xicotepec and Pantepet. It is situated on the Mesa de Coronel, one of the isolated flat-topped elevations which rise above the sea of forest covering the northern part of the State of Vera Cruz. The high interior plateau falls abruptly there from 8,000 feet to the Tierra Caliente and the rivers emerge (as they do on the picture-map) from below the dominant layer of basalt at the edge of the heights, or from deep ravines like that at Necaxa. The river that descends from Xicotepec to Chieualoque (R. San Marcos) and that from Pantepet past Metlaltoyaca towards Tuxpan and the sea, appear to be the two principal streams represented. From the number of town place-names, chiefly along the borders, the map must include a considerable stretch of country. The *tepec* (hill) occurs in twelve of these names and is still common in the region. The large sign near the bordering line may be Chicontepec (seven hills) which is to the north, whilst Mecatepec (hill of rope), shown tied in loops, is on a *mesa* to the south-east. A road wider than the others crosses the map near the top

* Add. MSS. 30,088, A, B, Mexico.

and may be the one along the top of the high plateau, from Zacualtipan towards Huanchinango and the Colhua of Ixtacamaxtitlan, whose sign is near it.

There are on the map seventy-nine persons, arranged in three principal groups and some lesser ones, each group joined by a rope. The chiefs are seated in characteristic Mexican fashion, with knees almost touching their chins. Quaint little bundles of men thus sitting look in real life, the mantle hiding their persons and their arms folded beneath, so that one would suppose they had no limbs. The seven women can be recognised by two feet which show below the scanty skirt. They wear the white huipil and skirt, both edged with coloured embroidery, still the costume of the district, and blue ear ornaments. The spokesman of the upper side-group wears a waist-band knotted in front like the stone figures which were found in the ruins. A king or principal chief is seated on the usual matted throne of other picture writings, above the central groups, conversing with a priest (?). A *tlaxco* or ball-court is behind him, and the day-sign 7 calli, over one of the blue crosses on yellow discs, of which there are rows below. The king's name-glyph consists of an animal head between two arrows. His footsteps lead to the side group, implying a visit; two members of it are speaking.

All personages have compressed hairless heads. Forty-six have name-glyphs, and twelve others, in the large centre group and one small side group, have names of Mexican day-signs. The building in the calli sign has a flat roof, whilst that on the pyramid, the house by the king and the one on a hill forming a place-name, have high thatched roofs, and white stucco walls. Colours used in the painting are: blue for the rivers, the lintels and door-posts of the buildings, the hill-signs, the king's mantle, 23 plain discs, the diadems and feathers of five chiefs. Orange-yellow for roads, faces, and the 20 discs, which have a blue Maltese cross. One of these has the sign for 400. The others may be fifteen four hundreds. Small circles or numbers of the day-signs are alternatively blue, yellow, white and red. The seven women are connected with their relatives by lines of dots, and in this way they connect two portions of the central group. Speculation on the purpose of the assembly would be idle. Comparison with similar scenes is necessary to bring out the meaning.

Metlatoyuca must have been an important place, easily defended and able to support a large population. The name is said to mean "the ground (*tlal*), where the maguey (*metl*) is cultivated." The existing ruins, at the time of my visit in November, 1894, were buried in a dense forest of tall trees hung with stout lianes and with an undergrowth of wild orange and lemon trees thirty feet high. Penetrating

this with difficulty,* a long and wide platform was discovered, about twenty-five feet above the ground level, forming one end of a large enclosed square and continuing at the same height along the sides of the square, terraced inside with several rows of steps. On the platform was a building consisting of a long narrow chamber with wide entrance, roof gone, and thick walls of stone covered with cement, sloping inward on the exterior. The back of the building was almost at the edge of the platform and the cement there had fallen off in thick slabs. On the right hand looking from the building, and outside the square, was a



FIG. 1.—SHOWING TEXTURE. high flat-topped stone pyramid, quite invisible until one came close to it through the thicket of foliage. Several statues were said to be lying under the mass of vegetation. Beyond the other side of the square were a

* Guided by a little hunchback, who walked along fallen trees with prehensile toes, the big toe quite separate from the others.

number of round stone-lined hollows, with steps leading down to the water that filled them. Further exploration was not possible. At the municipal building in the village of Coroneles were some long-nosed stone figures, two to three feet high, rudely cut, most of them with a hollow in the right shoulder (Fig. 2) and quite different from any of those at the castillo a few miles away. Many mounds and finds of pottery were reported by the colonists from the United States, who were then trying to farm on and round the *mesa*. There were also remains of a great wall, sixteen feet high, at another part of the *mesa*, which is about 1,000 feet above the sea.

The castillo (usually called "de Tiallo" from a neighbouring town) should be properly designated Zapotilan, a village close to it. The ancient edifice has three high stages or steps of stone, and a steep stairway of about thirty steps between outstanding projections like those of the Tajin. The angles are of long narrow stones closely laid, those of the lowest stage tilted slightly upward and stretching out at a rather acute angle with the ground at the base. On the top was a small building with sloping walls covered with stucco, which doubtless formerly coated the whole of the masonry. A number of menhir-statues was discovered when the ground was cleared by colonists about 1842, and ranged round.

The building in the centre of the picture-map is somewhat like the castillo. It is a pyramid on a base, has six high steps, and a platform with a building on the top. It will be noted that the stairway has the receding steps of Mexican temples. Totonacs and Mexican-speaking Indians meet in this neighbourhood. There is no reason why the cloth should not have been preserved for a few hundred years, as stated, in a stone chest.* The climate is dry for more than half the year. In fact there is a tradition that the fine city on a *mesa* near Chicualoque was abandoned on account of difficulty about water, the inhabitants moving near Papantla, where they are said to have built the Tajin.



FIG. 2.—LONG-NOSED STONE FIGURES AT CORONELES.

* Stone chests, usually round, were placed under important buildings. There was one beneath the centre of the north building of the Ball-court at Chichen Itza, Yucatan, with a massive stone cover.

Absence from all literature or illustrations of things Mexican prevents further elucidation of the map at present. Research may bring out its importance. Little has been done in that particular region, although so many ruined cities are waiting skilled investigation there.

Since writing the foregoing, Señor M. Gamio, head of the Dirección de Antropología in the Secretaría de Agricultura y Fomento of Mexico, has been good enough to send extracts from pp. 213-239 of the Report* referred to in the letter from Mr. Porter Bliss. A summary follows:—

The president of the exploring expedition, Dom Ramon Almaraz, started July 18, 1865, accompanied by the eminent geographer García Cubas and others. Their subsequent report included an account and plan of the ruins of Metlaltoyucá. In passing Huachinango it was noted that "the Indians were of medium height, strong, and most of them well formed, with long smooth hair and dark skins, speaking Mexican. Their faces seen in profile were very unlike the other Indians of the country. Below Xicotepec were Totonacs, who, with slight differences, were of similar appearance. Sr. Lic. Galicia Chimalpopoca thinks the name of the ancient city signifies *metlalli* [*metate*] = massive stone; *flatocia* = to fortify; *yocan* = a place."

"The ruins are within the virgin forest, one kilometre from the rancho of Jacome. At first sight there appeared to be only remains of pyramids built of slabs of a fine-grained sandstone [the local rock on the *mesa*], shaped into parallelepipeds laid in mortar and covered with a coat of good hydraulic cement, 2 or 3 cm. thick, of which a chemical analysis was made. Dense vegetation covered the buildings, rendering them invisible at a distance of ten metres. Of the several truncated pyramids of different heights, the most important one is eleven metres high, standing on a base forty metres square. It has six grades or steps, the lowest being one metre high, the others two metres. On the top are remains of constructions."

The writer then describes (not very clearly), what he calls the two principal tumuli "parallel to each other, with a space between them equal to the width, constructed with walls almost perpendicular inside, but with a slope of $2\frac{1}{2}$ degrees on the exterior." [He probably means the long chamber on the platform of the court.] He made a trench through one, but the interior was filled only with loose stones and earth. "Although part of the building had been thrown down, remains of hieroglyphic paintings in fresco could be seen on the cement. The vault is almost elliptic; the stones forming it gradually lose their horizontal position, inclining to the perpendicular towards the key of the arch, which was, however, entirely wanting.† All these stones are oblong in transversal section, the joints wider above than below and filled with mortar."

"Two sandstone figures were found, representing mummies, with long straight noses. The tanks, and the long steps are mentioned, also compartments like chambers."

"About 300 to 400 metres distant, to the N.W., is the entrance to the Mesa from the north. On each side are high precipices forming a natural defence. Across the space between, which is 300 to 400 metres in width, there is a wall four metres high and fifteen in diameter at the base, with a slope of $2\frac{1}{2}$ degrees, the cross section being a trapeze. Within this is a lesser one, about a third of the diameter of the first, leaving a sort of covered way between. The same system of defence occurs on the opposite side of the *mesa*."

The Expedition does not appear to have attempted any clearing, nor to have recognised the great court. A. C. BRETON.

Africa: Ethnology.

Frazer.

The Mackie Ethnological Expedition to Central Africa. By J. G. Frazer, D.C.L.

11

Letters from the Rev. John Roscoe, dated October and November, 1919, announce that the Expedition is now at work among the Bahima, an important pastoral tribe of Ankole, a district to the west of Uganda. The king and the

* *Memoria presentada a S.M. el emperador por el Ministro de Fomento...* 1865. Mexico, Imprenta de J. M. Andrade y F. Escalante, 1866. With illustrations. The Report states that the object of the expedition was the exploration of the country from Tulancingo to Tuxpan, to see where colonization could be successfully attempted. The *Century Dictionary and Cyclopaedia*, vol. x, has a good map of Central Mexico, on which the places here mentioned and the rivers can be found. The state of Puebla ends on the north in an acute angle, perhaps a survival of ancient limits. No maps of Mexico are strictly accurate in locations of towns and rivers.

† At Uxmal there is one false door, almost an arch.

native prime minister are doing all they can to help the expedition, and the principal chiefs are friendly. The prime minister has men at work collecting native medicines, some of which are extensively used, and may prove of value to science. The subjects hitherto investigated include the clans and their totems, relationships, rules of marriage, government, life in the cattle kraals, the distribution of cattle, and the customs of burial and mourning in the royal family and in the families of chiefs. Interesting information has been obtained as to the customs of adoption and inheritance. After a death the head of a clan comes and purifies the dead man's sister, and she purifies her brother and all the property before he can inherit. Succession is in the male line, but there are customs pointing to an earlier practice of descent in the female line. The king's sister is bound to marry a prince from a neighbouring pastoral tribe, who comes to live with his wife near the King of Ankole; yet the prince's brother, the king of the neighbouring country, may never approach or see the King of Ankole.

J. G. FRAZER.

Fiji: Totemism.

Hocart.

Note on Various Definitions. By A. M. Hocart.

12

The word totem has almost become a household word among people who take an interest in savages. So much so that we all think we know what we mean by a totem. Yet when it comes to facts it is often very hard to decide which of several things is a totem. I take an example from Fiji.

Father de Marzan has supplied interesting information regarding what he calls totems in Fiji. Dr. Rivers has described beliefs which he considers to prove that totemism existed in Polynesia and Eastern Fiji.

Both writers together seem to have settled the question once for all. Yet, on closer examination, we find that they have been describing totally different beliefs, of which either may be a totem, if we so please to call it, but not both.

Dr. Rivers became acquainted only with the "spirit animal," the *manumanu kalou* of the High Fijians, *manumanu yanitu* of the Low Fijians.*

These animals belong to one clan, or to the whole tribe.† They are the vessels of spirits or ghosts. They may not be eaten by the clan or tribe to which they belong. They are omens in war. The tribe of Nanduna in Ovalau derives its name from an eel, which, if I remember right, was their *kalou*.

These spirit animals are found chiefly among the High Fijian coast tribes and to a certain extent among the Low Fijian coast tribes. They only occur sporadically among the hill tribes. They are also found in Rotuma under the name *manman atua*, and in Samoa.‡

Father de Marzan deals mainly with a class of animals, chiefly fishes and plants, which have nothing in common with the spirit animals. They are limited to the Eastern Dholo tribes, who call them generally *idhavu ni yadha*, and to the Low Fijians, who call them *vutiyadha*. For convenience sake I propose to use the term *vutiyadha*, in whatever part of Fiji they occur. I have found no trace of them in Rotuma or Samoa.

Among the Eastern Dholo tribes the *vutiyadha* generally belongs to the whole tribe or sub-tribe, either because the chiefs are more important and the tribe as a

* See *An Ethnographical Sketch of Fiji* (MAN, 1915, 43).

† Fijians call both *matanggali*. There is in fact no hard-and-fast line between them, as a clan increasing in numbers constantly tends to become a tribe or sub-tribe, while its houses become clans. Sometimes they will speak of two intermarrying households within the clan as *matanggali*, yet the next moment deny that they are *matanggali* and assert that they are merely houses *mbure*. I use the word clan whether these groups are exogamous or not.

‡ Fuller information will be found in a paper "On the Meaning of the Fijian word Kalon" (*Journ. Roy. Anthr. Inst.*, XLII, 1913, p. 43), also "Spirit Animals" (MAN, 1915, 86).

whole has adopted the *vutiyadha* of the chiefs, or because the population has increased rapidly, turning clans into tribes. Among the Low Fijians each clan within a tribe generally has its *vutiyadha*.

The *vutiyadha* of any clan or tribe always form a series, which, at its fullest, consists of a fish, a plant, a yam, a taro, and a banana. Tribes differ as to the member of the series they place first. It may be the fish or it may be the plant. Ask a Navatusila man (North Western Dholo) and he will name a yam, and perhaps add a fish or snake as its "condiment" *; only upon inquiry will he specify the taro and the banana, if he remembers it.

These *vutiyadha* have no connection with spirits. The natives were most positive on this point, answering in the negative even such leading questions as whether the spirit entered them. They are simply "our" fish, or "our" plant, or "our" yam (in speaking of all except the plant they use the possessive of food: *keitou*). They belong to the tribe or clan because they were specially assigned to it by their ancestor (*vu*) or snatched up by him at the general distribution at Nakauvandra. The *vutiyadha* is in some places considered the special food of the tribe. Thus at feasts the clan of MBaralevu in the Navatusila tribe receive snake, their *vutiyadha*, as their share.

Among the Low Fijian tribes the clans are generally exogamous. Sometimes more in theory than in practice, but sometimes so strictly that a whole village, or a group of clans may constitute an exogamous group because they were originally one clan. However, the natives never in their discourse associate exogamy with *vutiyadha*. Yet there is a custom among the non-exogamous Eastern Dholo tribes which suggests that such a connection may sometime have existed. If a man comes to a tribe which is the cross-cousin (*veitambani*) of his own,† he will, after draining his cup of kava, call out the name of the *vutiyadha* of his hosts. This is resented by the women as an indelicate allusion and they give him a good beating and in no ambiguous manner defy his virility.

The terms *idhavu ni yadha* and *vutiyadha* mean "the utterance of the name." This suggests that the tribe or clan was originally named after the *vutiyadha*. It is still sometimes the case at the present day, as pointed out by Father de Marzan. To call a woman by the name of her *vutiyadha* was also a powerful form of entreaty. Thus in Nakorosule (South-Eastern Dholo) they would entreat a woman as *tuvakei* woman (the *tuvakei* is a plant,) and in Navai (North-Western Dholo) they would call her "prawn woman" (*lewa modhi*). Thus the people seem to have identified themselves with their *vutiyadha*.

The *vutiyadha* are never omens in war, but on returning from a successful expedition the warriors would call out the name of their plant thus: "The *tuvakei* is in flower."

There is no confusing the spirit animal and the *vutiyadha*, there is no deriving one from the other by some such ingenious scheme as was devised by Professor Frazer to explain why some Australian "totems" are eaten and some not. For the spirit animal and the *vutiyadha* are sometimes found side by side among the Low Fijians; and without the slightest connection with one another. The most striking case is that of the Navatusila tribe: their clan of Raralevu has the snake as their *vutiyadha* and as the condiment of their food, while their clan of Navandra has the *ndrava* fish as condiment of their *sevombo* yam, and the snake as their spirit (*tevoro*), wherefore the Navandra people may not eat snake.

* *Kena idhov*: any food eaten as a relish with yams and taro is called *idhov*; thus animal food is *idhov*.

† *Cp.* "On the Fijian Custom of *Tawen*" (*Journ. Roy. Anthr. Inst.*, XLII., 1913, p. 101).

Unconnected with one another as they are, the spirit animal and the *vutiyadha* have been combined into series of linked totems by residents in Fiji, including a person so learned in Fijian antiquities as Father de Marzan. It does not detract, therefore, from Dr. Seligman's merit and reputation to suggest that in his short visit to New Guinea he may have fallen into the same error, for he tells us that the bird totem alone of the linked totems is an omen in war among the Tubetube people.* This certainly suggests that their bird totem is really a spirit animal, and that his other totems are *vutiyadha*.

I will go further, though it may seem impudence to many, and suggest that Australian investigators have also fallen victims to the same confusion. May it not be that the totems that are eaten and those that are not eaten in Australia are, in some cases at least, as different from one another as the spirit animal and the *vutiyadha*?

Which of the two Fijian ideas represents the totem? The spirit animal possesses the features two and three, and part of one, that according to the *Notes and Queries*, "seem essential to totemism in its normal form." The *vutiyadha* possesses feature one, and part of two, and there is evidently some bond magico-religious or otherwise between the *vutiyadha* and the clan, or why should its name have such power in entreaties, and why should it be used as a cry of victory? Besides, these features only *seem* essential, and therefore if some are absent we are still free to call a thing a totem.

When we come to Vanwa Levu we find ourselves involved in worse difficulties. Among the Wainunu-Ndreketi tribes each man has a plant or animal which he may eat because "it is one with him," but his son is not allowed to eat it.† This plant or animal fulfils condition two of the *Notes and Queries* as far as the father goes, and for that very reason does not fulfil condition three; it fulfils condition three for the son precisely because condition two is absent; the father can eat of it because he is of one flesh with it, but the son may not eat because he is not one flesh with it. We can only call it a totem because we have not declared that any of these conditions are essential but only that they *seem* so. But then there still remains the question to be answered: "Is it the father's totem or the son's?"

We can only call both the spirit animal and the *vutiyadha* totems on the understanding that this prejudges nothing as to a common origin. But in deciding how we will use the word we have to consult the interests, not of the more critical spirits, but of the mass. Now the amateur, almost without exception, thinks he has done his duty when he has labelled a thing totem and ascertained whether it can be eaten or not, and he considers himself dispensed from further research. With somewhat more experience than an amateur, I have myself persisted a long time in identifying the spirit animal and the *vutiyadha* in the face of all evidence.

However we may decide totem for use in theoretical discussions, there is one point on which all will agree, and that is that the word should be strictly tabooed in the field and in reports on field work.

A. M. HOCART.

Dravidian Calendars.

Richards.

Badaga and Toda Months. By F. J. Richards, I.C.S.

13

On page 591 of Dr. Rivers' work on *The Todas* is a list of Toda months with the corresponding months of the European calendar.

A casual glance at this list would suggest that it is a "fake" invented on the spur of the moment by some resourceful informant to please an inquisitive stranger, for though it is perfectly obvious that at least five of the names are the names of

* *The Melanesians of British New Guinea*, p. 653.

† For full details, see "The Dual Organization in Fiji," MAN, 1915, 3.

Tamil months slightly corrupted, the Toda months of *Tai* and *Āni* fall three months earlier than the Tamil months bearing those names, while the Toda months *Ādi*, *Ovāni* and *Peritāthi*, occur two months respectively before the Tamil months of *Ādi*, *Āvāni* and *Purattāsi*.

I happened to meet a number of Badagas of prominent status at Aravankādu in Coonoor Taluk, Nilgiri District, in July, 1918, and I asked them by what calendar they determined the dates of their festivals. I was informed that they were guided by the English calendar, and I was surprised to find that most of them appeared not to know the name of any Badaga months. One elderly Badaga who was present, however, dictated a list which closely resembles the list published by Dr. Rivers, and I was afterwards able to check this information independently in other villages. The months so named, with their Tamil, Toda and English equivalents, are tabulated below :—

No.	Zodiac Signs.	English Equivalent.	Tamil.	Toda.	Badaga.
1	Aries	April-May	<i>Chittrai</i>	<i>Ātheri</i>	<i>Adhirē</i>
2	Taurus	May-June	<i>Vaiyāsi</i>	<i>Ādi</i>	<i>Ādi</i>
3	Gemini	June-July	<i>Āni</i>	<i>Ovāni</i>	<i>Āvāni</i>
4	Cancer	July-August	<i>Ādi</i>	<i>Peritāthi</i>	<i>Pritāthi</i>
5	Leo	August-September	<i>Ācani</i>	<i>Tudeivi</i>	<i>Dodda-dīrigē</i>
6	Virgo	September-October	<i>Purattāsi</i>	<i>Kirđiri</i>	<i>Kir-dīrigē</i>
7	Libra	October-November	<i>Arpisī</i>	<i>Tai</i>	<i>Tai</i>
8	Scorpio	November-December	<i>Kārttigai</i>	<i>Emioti</i>	<i>Hemāti*</i>
9	Sagittarius	December-January	<i>Mārgili</i>	<i>Kudrl</i>	<i>Kūdal</i>
10	Capricornus	January-February	<i>Tai</i>	<i>Ālāni</i>	<i>Ālāni</i>
11	Aquarius	February-March	<i>Māsi</i>	<i>Nallāni</i>	<i>Nallāni</i>
12	Pisces	March-April	<i>Panguni</i>	<i>Āni</i>	<i>Āni</i>

Possibly *Hemāti* (*Emioti*) is a corruption of *Māsi* and *Kir-dīrigē* (*Kirdivi*) of *Kārttigai*. If so, *Hemāti* is three months and *Kir-dīrigē* two months in arrear. I can offer no suggestion as to the derivation of the words *Adhirē*, *Dodda-dīrigē*, *Kūdal*, *Ālāni* or *Nallāni*.

The Badagas speak a dialect of old Kanarese, and their cultural affinities are undoubtedly Kanarese. The Kanarese month names are, however, totally different from those of the Badagas and Todas, and the Kanarese month is a lunar month, whereas the Tamil months from which half the Badaga month names are derived, are solar months.

According to Dr. Rivers the Toda month runs from new moon to new moon, but he gives no hint as to how the Todas determine their New Year's Day, or whether they intercalate a month periodically to adjust the lunar reckoning to the requirements of a solar year. Diwān Bahadūr L. D. Swāmikannu Pillai informs me that he has himself been baffled in his endeavours to get at these points.

The Badagas I have consulted tell me that the Badaga months also run from new moon to new moon, but no Badaga that I have met has been able to enlighten me as to how the New Year's Day is determined, or whether intercalation is resorted to. My stay in the Nilgiris was too short to permit of further inquiry.

Whatever be the origin of the Badaga Calendar, it is clear, I think, that it is in a state of decay. At Kātēri, the head village of the Kanaka clan, I found that the Kanakas were regulating their seasons with the help of a printed Tamil *panchāngam* (almanac), and I was told explicitly that each month begins on the 13th day of an English month and ends on the 12th day of the following English month. At Mainalai the fire-walking rite at the temple of Minākshi-Amma is said

*At Kātēri the name given me was Hemināti.

to take place on April 1st, and is now associated with honours due to Madiya Gaundar, who died on that day, in 1912, when the festival was being held at the age of 90.

The puzzle of the Badaga-Toda Calendar can no doubt be solved by further enquiries, but for the present it must suffice to bring to notice the fact that it exists.

F. J. RICHARDS.

Mathematics.

Thomas.

Duodecimal Base of Numeration. By N. W. Thomas.

14

In a recent volume (MAN, 1916, 70) I published a list of numbers in Burum† and suggested that the system was on a duodecimal base; Mr. Migeod (MAN, 1917, 4) took exception to my view, and argued that his version, in which *likuru* stood for ten, not twelve as in mine, was correct. It is possible that both are correct; it happens not infrequently that number words change their meaning when they are passed on from tribe to tribe, and there is no reason why the same thing should not happen within a scattered tribe. The tongues of a group of towns within a dozen miles, or less, of each other is often so far differentiated that they must rank as separate languages.

At the time of the discussion it did not occur to me to search Mr. Migeod's own work for support for my view, but accident led me recently to consider his specimens quoted from Koelle; there I find three languages, Yasqua, Ham, and Koro, all apparently to some extent related, on a base of twelve. In the case of Ham it is expressly stated that they begin again at thirteen, but it is not made clear how the new series is distinguished; but we have the numbers in Yasqua up to 24, and it is made clear that the compound numbers, including 20, are made up on a base of twelve, precisely as in other languages ten serves as a base. The numbers are as follows:—

NO.	YASQUA.	KORO.	HAM.
1	unyi	alo	jini
2	mva	abe	fali
3	ntad	adse	tat
4	nna	anar	nah
5	nto	azu	to
6	ndshi	avizi or abirizi	toni
7	tomva	avitar—botar	torfo
8	tondad	anu*—oruno	nalañ
9	tola	ozakie—othakie	mbonkob
10	nkc(b)	ozabe—othabe	kowua, kob
11	umvi	zelo—uthelo	mbonshok
12	osog, nsog	agowizoe—gowurthue	borho
13	nsoi	pialo	[Then begin afresh—Note by Koelle.]
14	nsava	piabe	
15	nsoatad	pladsie	
16	nsoana	planar	
17	nsoata	planu	
18	nsodsi	plavizi—eprabithi	
19	nsotomva	plavita—epravita	
20	nsotondad or kueva	plarnu—epraruno, or zabebe	

There are several points of interest about their vocabularies quite apart from the resemblances to Burum, to which I refer below. Yasqua and Ham form the numbers from five to eight by addition, and Yasqua forms nine in the same way, whereas in Ham nine is clearly a subtractive; eight in Ham is additive, and means four (plus) four.

* Arnu is written by Koelle.

† The missing word for six is *yitimin*.

The situation as regards Koro is not so clear; six is not necessarily on the base of five, although its outward appearance in this case suggests it; *abirizi* (*avizi*) might be explained as *abe-r-adze* (2×3), an unusual form, to which, however, a parallel may be cited from Logone,* where the forms *venachkir* (2×3) and *venyade* (2×4) are found for six and eight respectively; related forms are found in Kotoko.† If this were correct we might explain *avitar* as equivalent to *avitalo* or *avizalo* ($2 \times 3 + 1$); the form *botar*, however, suggests that *avitar* may be formed by analogy to *avizi*; but *botar* itself may perhaps mean "add three," if we derive it from Yasgwa; and in that case *avitar* must mean the same; therefore we must take *avizi* to be "(add) one," i.e., derived from a hypothetical form *av-id-yi* (cf. Yasgwa *unyi*). If this is correct six is formed on a base of five, seven on a base of four.

The Koro word for eight, *anu*, may contain the word four (*anar*), and mean four plus four, but nine, ten, or eleven appear to be subtractives (from twelve), and mean "less three," "less two," "less one"; in that case eight, if it contains the word four, may have been misread for *ozanu* and mean "less four"; the form *oruno* is unexplained.

The form *mbon-shok* (12—1) in Ham is clearly parallel to *mbonkob* (10—1), and shows how Ham may have derived this numeral, at least in part, as *shok* is clearly *osog* (12); the form *šorho* is a variant of *sog(h)o*; twelve appears, therefore, to be the same word in all the languages. The form *kuera* in Yasgwa is (*oso*)*ku-eva* (10×2), while *zabebe* may perhaps be $5 \times 2 \times 2$, a unique form; but in *ozakie*, *ota* appears to mean "take away" (*kie = tsie*, i.e., three), and we may therefore make *zabebe* equivalent to "take away two plus two" (i.e., from 24); possibly, however, the word really means twenty-two.

Turning now to, Mr. Migeod's Burum (MAN, 1917, 4) we find the form *vichimen* (6) corresponds to the Koro numeral, as does *ritama* (7); *shavitar* (9) is apparently a subtractive, and must mean "less three"; this agrees with the explanation given above of the form *avitar* for seven. *Likuru* (10) is clearly related to *nko* in Yasgwa; the only form left unexplained is therefore *luvit* (8); this may mean "add three" (*lu-bitat*); the contraction of the form for eight is, of course, a familiar feature in many languages; we find for *ene-ene* such forms as *enyi* (Ewe), *ele* (Kukuruku), and so on; *esa* for *esesa* (Sobo) is a corresponding form for six.

As regards my own Burum vocabulary, *bitimui* (8) may be for *bit-anu*, connecting the word with *anu*; *santad* is "take three," *šamba* is apparently identical with *ozabe*; the *m* is a formative that is dropped in Koro, but found in Burum and Yasgwa. On the whole, my informant's accuracy is supported against Mr. Migeod's strictures.

It would be natural to assume that the tribes which make use of this unusual system are in close contiguity. Mr. Migeod locates Burum on the Bauchi plateau, Ham to the west of Bauchi, and Yasgwa east of Kambali, following in this the information given by Koelle in his *Polyglotta*, who says Yasgwa is near Kambali and Nupe and east of Goalie. If by Kambali we are to understand the Borgu tribe, and if we can equate Goalie with Gwari—and both identifications seem justifiable—it is difficult to reconcile the statements, for the Gwari are apparently 120 miles further east, and as Koelle states that the Yasgwa are further east still, it is simplest to assume that there was some misunderstanding; possibly the informant spoke of the route he followed.

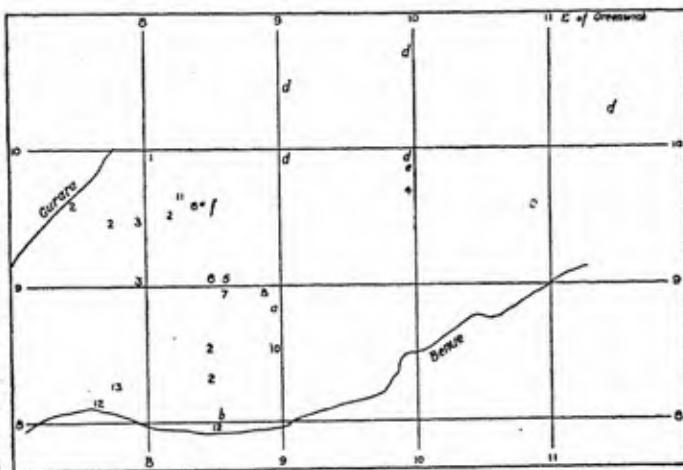
We have other grounds for this opinion; I have located the four tribes as shown on the map; the name Ham does not appear on the map; the tribe is there,

* Barth, *Vocabularien*, I. 9.

† 14th Oriental Congress, Part II, p. 276.

but Koelle's synonym for Ham, Jaba (the Hausa word), takes its place; Ham, Koro, and Yasgwa are thus, as we should expect, next-door neighbours; Burum is separated from the other three by some 120 miles; under the circumstances we need have no hesitation in discarding Koelle's information as to the Yasgwa.

One other tribe, the Afo, on the lower Benue, is said to have a duodecimal system, but no list has been published (Schubert, *Zählen und Zahl*, p. 23); the author drew his information from Flegel, who, though he published a Bassama vocabulary (*Vom Niger-Benue*, p. 26), did not refer to the Afo, who



appear to be the same as the Agatu; this Bassama vocabulary was of the Quinary-denary type, and was only remarkable for the fact that twenty was expressed by *bo bo* (ten, ten) instead of the more usual multiplicative. Schubert's statement gives no ground for supposing the Koelle's location of the Yasgwa is correct, as the Afo are situated about $7^{\circ} 30' E.$ and $8^{\circ} N.$, i.e., about eighty miles south of the position where I locate the Yasgwa and nearly two hundred and fifty miles from the Kambali.

In connection with the Bassama vocabulary by Flegel, it may be noted that *shidde* (1), *fad* (4), *tuf* (5), *poafat* (8), and *taambide* (9) of Barth's Zani vocabulary, published by Benton, are apparently the same language, while *pe* (2), *maken* (3), *tokuldaka* (6), *tokulape* (7), and *bo* (10), of the same traveller's allied Batta vocabulary correspond to the remaining numerals, Strumpell's (*Z.f.E.*, 1916, 456) are identical with Flegel's. Writing in the *Journal of the African Society* (XI, 402), Mr. H. R. Palmer says that the Jukun, Arago, Kororofa (or Koro) are all the same stock; Koelle connects the Arago with the Ham, and adds that the name of the southern portion is Agatu. This agrees excellently with Flegel's statement, but it is difficult to accept Mr. Palmer's identification of the Koro with the Jukun (Hausa=Kororofa), for the vocabularies are altogether different. No doubt the Jukun were formerly far more widely extended than they are at present, and it is possible that an isolated Jukun remnant, known as Koro, has given up its own tongue and accepted that of its neighbours; but this cannot be assumed without further proof than a partial identity of name.

The Arago tribe appears to be south-east of the Ham, about $8^{\circ} 50' E.$, $8^{\circ} 20' N.$. Doma is correlated with Arago by Crowther, who shows it on his map in $8^{\circ}-9^{\circ} E.$, $8^{\circ} N.$, next to the Bassama, but the vocabulary is clearly of the Yoruba type.

The Arago are therefore identified with the Doma and Agatu (Crowther), the Ham (Struck), and the Jukun (Palmer). As Crowther states that the Agatu were driven down by Fulani, there is good reason for connecting them with the Ham or the Jukun rather than with the Yoruba. Flegel's evidence seems to make it clear that of these two tribes it is the Ham, not the Jukun, with which they are

allied in language, if Agatu and Afo are identical; but there is an Apu tribe close at hand.

It has frequently been assumed that the duodecimal system, which is in Europe crossed with the decimal system, is a product of Babylonia; how far this view is still accepted I do not know. But it is clear that, even though Egyptian influence in West Africa may be well established, we can hardly accept such a far-reaching theory as Babylonian influence on numbers below 20, which would surely imply both early and close contact, in the absence of other evidence of Asiatic influence in this area.

In this connection it is of interest to note that six is often a base for seven, less frequently for eight and nine. In many of these cases six is itself very clearly on a base of three (*i.e.*, $3 + 3$, or, in the case of Logone and Kotofo, 2×3), a result possibly due to the method of counting on the fingers. There is no evidence, it is true, for the $3 + 3$ sign in West Africa, where the subject of numeral signs has been sadly neglected, but it is well evidenced for Bantu tribes, and may well have preceded the present primary counting, which finishes the fingers of one hand before beginning the other.

Not only do we find $3 + 3$ and the six base for numbers from seven to nine, but in a small area near the Geba River, in French Guinea, we have $10 = 6 + 4$ (Bulanda), $12 = 6 \times 2$, $24 = 6 \times 4$ (Bola). There is nothing to connect this development with Babylonian or Egyptian influence, so far as I know, though as regards burial customs the foreign element is conspicuous.

We may suppose that counting on the fingers was often used, even if it was not initiated, in the market, where people of different tribes or mutually unintelligible dialects would meet; it is interesting in this connection to record that in parts of the Ibo area six cowries appears to be the unit—corn balls are, for example, retailed at six cowries each; not only so, but higher numbers, though the base of the numeration is five-twenty, are actually reckoned in sixes in many cases; 210 might, for instance, be expressed as six in seven places five times, a form of expression that seems to point clearly to the counting of cowries into heaps of six. This mode may, of course, have come in with the cowries (when that was is unknown, though it was certainly before the fourteenth century (*Travels of Ibu Batutā*, p. 241), and may, in view of European prehistoric discoveries, go back two thousand years at least in some areas); in other areas cowries were introduced in the last century, as we learn from Barth.

It is, however, equally probable that the cowries were counted in sixes because that was a mode of counting familiar at the time when they were introduced or became plentiful, and we may be fairly certain that, (1) cowry money has been plentiful in West Africa only in the last few hundred years, and (2) it would not be counted out, when it was introduced, as it is at the present day. Bosman (*Naukeurige Beschrijving*, II, 206) mentions three cowries as a fee for a service in his day, that could hardly be valued at less than a penny or twopence, so that cowries are now worth at most one-thirtieth of their value in the seventeenth century. On the whole, then, it appears simplest to suppose that as cowries depreciated and came to be the small change of the market, they were counted according to the prevailing system. Perhaps some light might be thrown on the subject by records of West African methods of counting on the fingers, which have, compared with those in vogue in Bantu areas, a much greater uniformity so far as our scanty records go.

So far as I am aware, no exact parallel to the duodecimal system here discussed has been recorded in Africa. In fact, the only other area with a duodecimal base is the Huku-Walegga, north-west of the Lower Semliki (Johnston, *George Grenfell*,

II, 861), and they have this base only for the numbers from twelve to fifteen ; the numerals are of interest as giving a parallel to the uncertain use of *likuru* in Burum, for Huku *bakumba* (12), is clearly allied to Popoi* *kumba* (10). The Huku system is otherwise remarkable, as seven is $6 + 1$, eight 2×4 , sixteen $(2 \times 4) \times 2$ with the following three numbers as additives, while twenty is 10×2 ; this singular combination appears to be the result of borrowing, at least in part.

It remains to add that if we find no duodecimal system among any people likely to have been in contact with the Nigerian tribes, we must assume an independent origin for the system. If it had been transmitted from Babylonia via Egypt, it must surely have left some traces on its road. For those who believe that duodecimal notation can have been invented once only, it is an interesting problem to bring the Nigerian duodecimal area into relation with Babylonia.

After most of this note was written I came across four further lists, published by Mr. G. F. Mathews in *Varia Africana*, I, 93. The map shows the position of all the tribes under discussion, and is based on the *Political Map*, 1907, and the 1/500,000 of 1910.

The tribes are denoted as follows :—

A. DUODECIMAL.	B. UNCERTAIN.	C. DECIMAL.
1. Ham (Jaba)	10. Arago	A. Ankwe
2. Koro	11. Kagoma	B. Tiwi (Munsi)
3. Yasqua (Yasko)	12. Agatu	C. Jukun (Kororo-fa)
4. Burum	13. Apu	D. Jara (-wa)
5. Ninzam		E. Duggera
6. S. Mada (a) N. Mada		F. Kagoro
7. Nungu		
8. Mama district† (a) Arum (b) Barku (c) Burrya (d) Upye		The main mass of the Jukun are S. of the Benue ; at least two dialects exist, of which Čamba is remarkable for a suffixed <i>wa</i> .
[9. Afu]‡		

I have not, up to the present, discovered vocabularies of the tribes numbered from 10 to 13 ; their numeral system is therefore uncertain. Agatu corresponds in position to Crowther's Doma. The Jara (and Duggera) are noted because of their relation to the Mama group, but I am uncertain from which section of the tribe the data published by Koelle and Sir H. H. Johnston (*Comparative Study*, p. 725) were derived ; the termination *-wa*, *-awa* means people.

I discuss the new information and republish the four lists from *Varia Africana*
N. W. THOMAS.

* *Bull. Soc. roy. belge de Geog.*, XXXVI, 177.

† Not exactly localised, but to the east of Nungu.

‡ Afu is given as a Bauchi tribe by Major G. Merrick (*Journ. Afr. Soc.*, V, 43-47), but not further localised ; this is probably the tribe to which Flegel refers, though how he came in contact with it is not clear.

REVIEWS.

Ethnology.**Huntington.***World Power and Evolution.* By Ellsworth Huntington, Ph.D. Yale University Press. 10s. 6d. net.**15**

The thesis of this work is that the human race is in a state of flux in part due to the selective action of the whole environment in part to sudden mutations arising among immigrants to new countries.

The evidence as to mutations rests on the work of Boas in New York for the United States Immigration Commission, supported by extracts from that of Fishberg on the Jewish populations of eastern Europe. The marked difference between the American and European born offspring of Sicilian or eastern Jewish parents, Dr. Huntington regards as evidence of the effects of change of environment and he feels this is confirmed by the lack of such differences between the American and European born children of Scottish parents. The climatic changes are declared to be great for the former but slight for the latter groups.

The general effects of environment are supposed to act through the medium of health, and this in turn it is suggested is largely a matter of climate. Strangely enough the author does not utilise the previous work of Woodroffe, on the effects of light on the health and on the range of human colour type in relation to latitude. The argument brought forward is partly historical, the political downfall of various dominant peoples of the past being associated with morbidity arising from changed climatic conditions. The examples particularly are the peoples of the Mediterranean and the empires of Rome and Carthage. The evidence seems to support the view that a people does not flourish under conditions very different to those under which it arose whether these changes be local or due to migration, and there are grounds for supposing this is in part due to a changed differential death rate. The author considers the changes in climate from pre-glacial times to the present day, but in recent years the climatic pulsations have been small.

In dealing with modern races Dr. Huntington instances the evidences of deterioration found in the course of the medical inspection of school children. This is an argument to be used with caution owing to the local variations of standard and on the whole tends to show the failing physique in certain respects of modern man as a whole rather than changes in special localities. He tests morbidity by the total death rate in the registration area of the United States, which it may be noted is only New York City, Chicago, Connecticut and Massachusetts, and gives curves to show the approximate parallelism between this and examination results, school attendance, prices, bank clearings and the like as evidence of mentality and prosperity. To secure this he has to shift his curves a different number of years to secure a fit, and the reasons adduced as a justification for so doing are not entirely convincing. For example, he argues that ill-health leads to low prices, and that once prices fall they do not recover so quickly as health; it is, however, quite possible to argue from the same curves that the real course of events is that low prices lead to good health which persists for some little time; an order of causation which would seem more in accordance with British experience, particularly in relation to such diseases as tuberculosis and rickets.

In the smoothed curves, however, the only great oscillations coincide with outbreaks of influenza which are no doubt followed by periods of depression for the sufferers and which in great epidemics in the past may have served some such function as the author suggests. As their effects have been worldwide they can scarcely have exerted the required differential selection for racial change. F. S.

Anthropology.

American Journal of Physical Anthropology. Washington : April-June, 1919.

16

The April-June number of this Journal contains a comprehensive sketch of the origins of the Portuguese by A. A. Mendes Corrêa, professor of Anthropology in the Faculty of Science, University of Oporto. A good deal of archaeological work has been going on quietly in Portugal during recent years, with many interesting discoveries since M. E. Cartailhac published his *âges préhistoriques de l'Espagne et du Portugal* in 1886. The splendid collections in the museum of the Geological Service (Academy of Sciences) at Lisbon, and in the museum at Belem (the suburb), show something of the country's treasures; but much must still be lying hid. The geographical position of Portugal, at the centre of all maritime coasting trade through untold ages, makes careful investigation there especially important.

Professor Mendes Corrêa's paper is mainly ethnological, but he begins with the supposed eoliths found by Carlos Ribeiro in 1866 and subsequently in the limestones, marls and lacustrine sandstone of the middle and upper Miocene formations of the Tagus and Sado basins. These are in the museum of the Geological Service, and were discussed at the International Congresses of 1872, 1880 and 1889, also by the Congrès Préhistorique de France in 1905. There was hesitation in accepting anything so remote, and objectors thought the undoubted bulbs of percession might have been caused by natural agencies.

Plenty of typical palaeoliths have been found, some of them on the hills behind Belem. "The greater number of the sites with Chellean, Acheulean or Mousterian implements are on the surface and many have not been as yet properly explored." At Mealhada near Coimbra and in the cave of Furninha (Peniche), Chellean objects were found with an ancient fauna. Near the Spanish-Portuguese border the Abbé Breuil recently discovered, in the vicinity of the cemetery of Arronchos, an important site in an ancient terrace at least 20 metres above the present river Caia. An Acheulean layer with chips, disks, and coups de poing overlies a Chellean industry. Vergilio Corrêa counts no less than thirty-eight palaeolithic sites in the neighbourhood of Lisbon. The only human remains yet found are a skull in the Arieiro valley, "sub-brachycephalic and much like the skull, Furfooz No. 2," and a fragment of a lower jaw at Furninha.

The kitchen middens of the Tagus valley, were called epi-palaeolithic, are notable for the abundance of human bones; according to Professor Mendes Corrêa, they represent about 200 individuals, mostly women and children. These people must have been peaceful and sedentary (the women staying at home whilst the men were away fishing), living on game and fish, with bone and stone implements. The Abbé Breuil considers them to be of the Tardenoisian period. "There is no homogeneity of physical type in the skeletons at Mugen. The dolichocephals present a type characterised by low stature, highly-developed supra-orbital arches in the masculine skulls, occasionally a sloping forehead, high vault and small cranial capacity, with prognathism accentuated, tibiae platycnemic. There is also some brachycephaly." The author thinks that this *Homo afer*, var. *taganus*, should be included in a group of inferior races, Australoid or proto-ethiopian, and notes various divergences from the neolithic man of Baumes-Chandes, with whom these had been previously identified. He also distinguishes three types among the brachycephals and says that Mugem and the Azilian station at Offnet (Bavaria) "constitute the most ancient definitely ascertained palaeo-ethnological deposits in which brachycephaly appears in the European *Homo sapiens*."

Of the neolithic population the author has little to say except that it is possible to conclude that it was heterogeneous, that the people lived in tribes with different

cultures and were of different anthropological origins, that there was intercourse between them and also with foreigners. The great quantity and variety of the objects collected in the museums should afford comparison with those in other countries, with which there might have been communication. The exquisite arrow points (especially the very small ones, minutely serrated), of crystal and of divers coloured rocks, the polished stone beads, the incised pottery, are typical of other and far regions where the neolithic folk left their products.

From this time onwards there must have been a succession of waves of foreign traffic which left their impress on the natives. Ligurians, Lusitanians, Iberians and Celtiberians are names and little more. The important Phoenician colony of Gades was founded about the twelfth century B.C. Romans, Visigoths, Saracens, Jews, Gypsies, and the Napoleonic wars added to the cosmopolitan character of the Portuguese, whilst from the time that they embarked on adventures and discovery there were added immigrants from Brazil, Africa and India.

The Professor gives some anthropometric data and has made a metric study of some dozens of identified Portuguese skeletons in the Oporto anthropological museum. He says they are on the whole the most dolichocephalic nation in Europe, and identifies the medium Portuguese type with the *homo europaeus*, var. *mediterraneus*, "which certainly descends from the race of Baumes-Chandes that is represented in the neolithic stations of the country. This type is found purest in remote mountainous regions." The Nordic type, blond, tall, dolichocephalic, extremely leptorhinic, left plain traces of its protohistoric and historic invasions in the northern parts.

Other contributions include an introductory paper by the editor, Dr. A. Hrdlicka, on Anthropometry, and notes on the weight of the liver in whites and negroes by R. B. Bean and Wilmer Baker. They find the weight of the male negro liver to be decidedly less than that of the white, as was also the case in their examination of spleens. Would this account for the lightheartedness of the negro?

C. H. Danforth, of the Department of Anatomy, Washington University School of Medicine, has a careful study, with 21 illustrations, of the left hands of two newborn negro twins, which had a rudimentary sixth finger on the left hand only. There were a few cases of polydactyly on the father's side. The writer says he has obtained several similar fingers that were removed surgically, and has also examined a number in living infants and adults. He quotes from Sir H. H. Johnston's *The Negro in the New World*: "Polydactylism (six fingers and six toes) is perhaps commoner among negroes (especially in West and South Africa and in the West Indies) than among the white or yellow peoples," and again: "An interesting point about the Bahama negroes is the relative frequency of polydactylism." But no title relating especially to polydactyly in the negro could be found in the index catalogue of the Surgeon-General's office library at Washington nor in the first sixteen volumes of the Index medicus.

A. C. B.

ANTHROPOLOGICAL NOTE.

Arrangements are being made to hold the 20th International Congress of Americanists at Rio de Janeiro, Brazil, between the 18th and 30th June, 1920. **17**

Intending Members or Associates should communicate with the Secretary, Sr. Alfredo Mariano de Oliveira, Sociedade de Geographia, Rio de Janeiro, Brazil. Subscriptions (one pound for a Member, ten shillings for an Associate) should be sent by international postal order.



FIG. 1.—MAKING GUN-FLINTS FOR SALE.



FIG. 2.—STRIKING OFF FLAKES.

GUN-FLINT MAKING IN ALGERIA.

ORIGINAL ARTICLES.

With Plate C.

Ethnography.

Hilton-Simpson.

Gun-Flint Making in Algeria. By M. W. Hilton-Simpson.

18

In the spring of 1914, while engaged in collecting ethnographical specimens for the Pitt-Rivers Museum, Oxford, I witnessed the trimming of gun-flints among the Shawia (Berber) inhabitants of the Rassira valley, situated on the southern slopes of the Aurès mountains, which form the northern boundary of the Sahara between Biskra and the Tunisian frontier.

The necessary material is common enough in the district and most gun owners

are themselves capable of roughly trimming the flints they require for use in the long-barrelled muzzle-loading guns and pistols, which still form the principal armament of the natives; in one village, however, I met with a specialist who trimmed flints for sale (Fig. 1, Plate C).

This man employed no hammer for striking off his flakes from the core, but obtained them by striking the core with another stone, a method which appeared to entail a considerable waste of material (Fig. 2, Plate C).

For trimming the flakes thus struck off, he used a small tool which somewhat resembles in outline the universal general utility agricultural implement of the country, a combination of a hoe and a pick, which is known by the same name, "gedūm."

This tool, of which I give a sketch, is made entirely of iron, and measures about $2\frac{1}{4}$ inches from A to B and $2\frac{1}{2}$ inches from C to D. From A to C it is rectangular in section, but it becomes circular in section towards B, where it terminates in a blunt point.

This point (B) is used as a lever to screw up the jaws which hold the finished flint in the hammer of the gun, by inserting it in a hole provided for the purpose, perforating laterally the large boss-like head of the screw which clamps these jaws upon the flint.

The handle, C to D, is more or less circular in section in the centre and is often ornamented with incised lines; towards the end, D, it is flattened out to form a screw-driver with which the coarse screws in the gun-lock are adjusted. Below C the implement is usually perforated for suspension or fitted with a loop for this purpose.

The specialist to whom I have referred grasped the implement around the handle (C to D) with the middle and third fingers and thumb of the right hand and applied pressure with the forefinger between A and C, striking the flake, which he

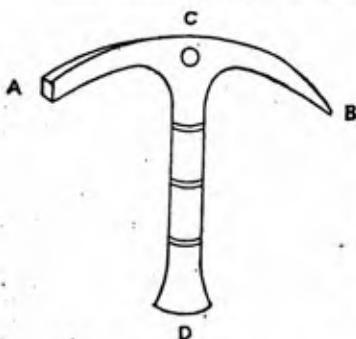


FIG. 3.—TRIMMING FLINTS WITH ANOTHER STONE.

held in his left hand, with the side of the implement immediately below his forefinger. I have seen other natives, however, use the end (A) of the gedūm for chipping the flakes. The gun-flints, when finished, are of rough workmanship but perfectly serviceable.

The specialist was in the habit of carrying about with him some flakes and his gedūm in a leathern bag (which I collected with its contents), in order that he might execute any sudden order on the spot; he appeared to have no special place in which to carry on his work. As will be seen from the photograph (Fig. 1), this man's features indicate an infusion of negro blood. This is explained, I think, by the fact that he inhabits the southern end of the Rassira valley, not far distant from the edge of the desert, some of the neighbouring oases of which contain a population bearing the negro characteristics of the Wad R'hir; I have seen no evidence of flint chipping being carried out by itinerant negro professionals in the Aurès.

Higher up the Rassira valley I saw a native making gun-flints for his own use, who not only produced his flakes by striking the core with a stone, but who finished off his flints by the same means, using no gedūm or other tool for the purpose (Fig. 3). The resulting gun-flints, though roughly trimmed, were quite usable.

M. W. HILTON-SIMPSON.

Archæology.

Stone Circle, Eyam Moor. By J. S. Wilson, A.M.I.C.E., and G. A. Garfitt.

19

The collection of information relating to megalithic monuments, which is being made by the committee appointed by the Royal Anthropological Institute, should enable great progress to be made in the discovery of the purposes for which these works were made. Many uses have been suggested, but most have little, if any, evidence to support them.

The object of this note is to urge all who help in the work of the committee to make the collection of information in a thoroughly scientific manner without any bias formed by any particular theory, and to make all measurements and plans as complete as may be possible, for by so doing any theory may be tested by reference to these valuable records.

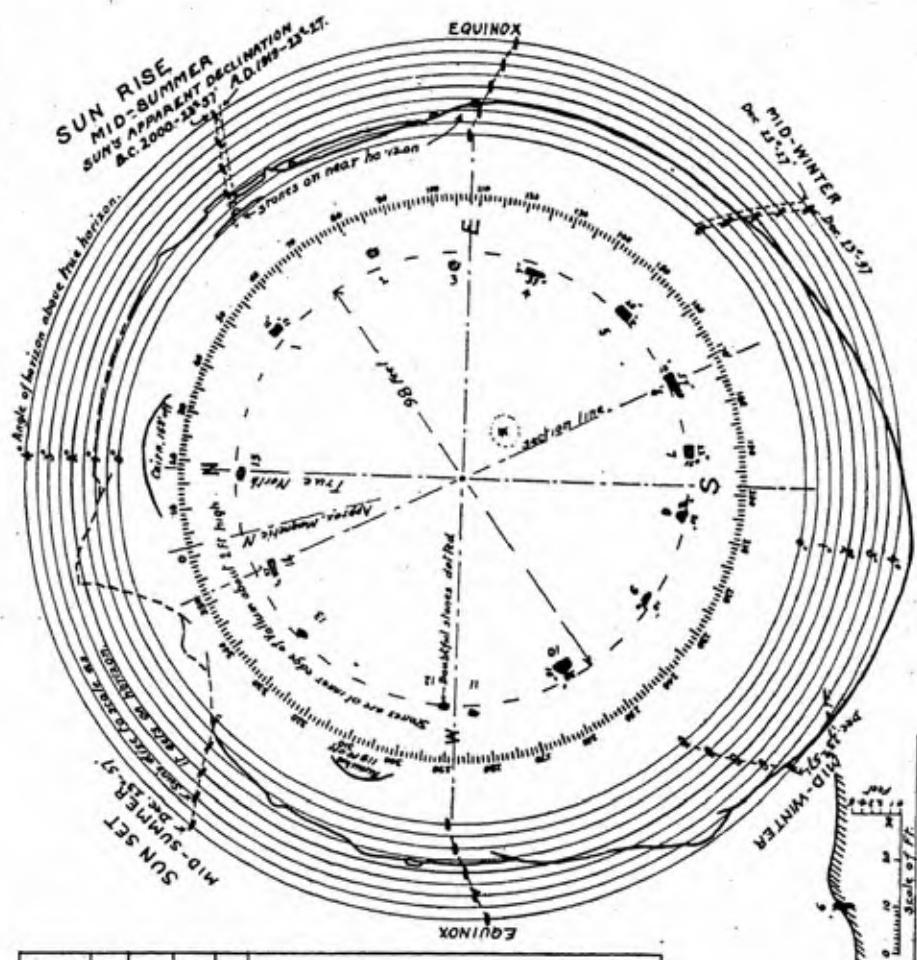
The accompanying diagram is given as a suggestion of the measurements and the type of record that might be made of stone circles. It is the result of a fairly careful, though by no means complete, survey of the stone circle on Eyam Moor, Derbyshire.

The completeness of any survey will depend almost entirely on the instrumental aid available, and to the labour and trouble which the enthusiasm of the workers will drive them to endure.

To facilitate making the measurements and recording them, a specially drawn chart or form is suggested, and the survey of the Eyam Moor circle has been drawn on it. The chart, which doubles into quarto size ($10'' \times 16''$ folding to $10'' \times 8''$), has a scale of degrees marked round a centre point for fixing the directions in which the stones lie, and a series of concentric circles for sketching in the sky line. To the left there is a space for various particulars as to name, position, etc. of the monument. Such a chart printed on stiff paper is convenient to use in the field.

With the aid of a prismatic compass, a tape and a folding measure (four or five feet long, folding into a length of seven or eight inches, is a useful size), all of which can be carried without any inconvenience over practically any ground, a plan of a stone circle can be made as follows:—

By measuring two diameters at right angles find the centre of the circle, and



STONE CIRCLE	
Name.	EYAM MOOR (Wet Willhems)
Position	Long. $1^{\circ} 39' - 42'$ W Lat. $53^{\circ} 18' - 26''$ N
Ordnance SHEET	Derbyshire XVI NE
HEIGHT ABOVE SEA LEVEL	About 1050 feet.
DATE OF SURVEY	July, 1919.
REMARKS	Stone No. 10, has number cut on (now obscured) At * here is a hole, possibly socket of stone. removed. (Wood's History of Eyam, p. 19)

mark it with a stone or small peg. Then while keeping the prismatic compass vertically over this centre mark, measure the bearings of the various stones of the circle and other objects to be put on the survey. The prismatic compass gives the angle of the object from the magnetic north point measured round from left to right. A knowledge of the working of this little instrument has been gained by so many during the war that further description is not necessary. The angles thus measured should be marked on the inner dotted circle of the chart, by laying a short ruler across from the centre of the chart to the corresponding degree mark on the scale. Then measure the distance of each stone from the centre mark put in the circle and write this against the mark just put on the chart. It will be found convenient to number the stones round the circle. The stones will most likely not be on a true circle and their exact positions can be plotted to some scale which will keep them within the scale of degrees on the chart. If convenient this should be done on the spot, as inaccuracies can then be easily detected and corrected. Having the position of each stone, the next step is to sketch in the shape of the stones and to write in the dimensions in plan and the height.

To complete a simple survey and record of this nature, it is necessary to put in the true North. The bearings measured with the prismatic compass refer of course to the magnetic north, which is to the West of the true North by an amount which varies (at present about 16 degrees in Derbyshire); and to get the true North and allow for the above difference and any other in the construction of the compass, it is sufficient to measure with the compass the bearing of something in the vicinity of the circle which is clearly defined on the six-inch Ordnance sheet, such as the bearing of one conspicuous point on the map observed from another conspicuous point. The angle between the corresponding line drawn on the Ordnance sheet and a true North and South line drawn between the degrees of latitude, marks which will be found on the top and bottom border of the map, will give the bearing with the true North. A comparison between these two angles will permit the true North to be marked on the chart. Thus the bearing of a cross road seen across the valley when observed from the angle or a corner in a stone wall on the moor might be $238\frac{1}{2}^\circ$. The angle between the line corresponding with this line of sight drawn on the map and the true North and South lines measured round in the same direction as the hours on a clock might be 222° . This would mean that the true North would have a bearing of 16° by the compass and could be marked on the chart accordingly.

Interesting facts are soon revealed by simple surveys of stone circles such as described above. For instance, two circles of about the same size and some miles apart which were examined by the writers, each had one stone much higher and more prominent than the others forming the circle. Comparing the two surveys, it was found that the two prominent stones lay in exactly the same direction with respect to the centre of the circle.

To check theories such as those put forward by Sir Norman Lockyer, that these monuments were used for astronomical purposes, particulars of the sky line all round the horizon are required. In the illustration the sky line is sketched in the space round the outside of the scale of degrees.

To measure how much the sky line may be above or below the true horizon, a clinometer, or else some form of light theodolite is required. A clinometer is light and portable, but not so satisfactory as a theodolite, although the latter is much heavier and more difficult to carry over rough ground. In using the clinometer, the bearings of noticeable features on the sky line are first measured with the prismatic compass and marked on the chart on one of the circles outside the scale of degrees. Then with the clinometer, the vertical angles to these points on the sky line are

measured. These are plotted outwards, so that successive circles may represent degrees or half degrees, depending on circumstances. The sky line round the Eyam Moor circle is generally above the true horizon, so that the inner circle is made to represent the true horizon, and each circle outwards represents half a degree of vertical angle. The sky line towards the north could only be seen indistinctly at the time of the survey. By holding the diagram up with any point of the compass uppermost, then the sky line in that direction is shown immediately above. With the sky line thus accurately plotted with respect to the true North, the exact position on the sky line, that is, the azimuth angle, of the rising or setting of any heavenly body, can be exactly calculated and marked on the chart if required.

In the survey of the Eyam Moor circle several large stones were noted on the near horizon towards the N.E. and E. The path of the sun at sunrise for the latitude of the circle, after making allowances for refraction, was calculated for different declinations of the sun and plotted on the chart. It will be seen that the position of prominent stones plotted on the diagram appear to mark the position of sunrise at midsummer and at the equinox. On the diagram the position of sunrise is shown for the present obliquity of the Ecliptic, or Sun's apparent declination of $23^{\circ} 27'$, also for an obliquity of $23^{\circ} 57'$ which, according to the estimates of astronomers, would have been correct 2,000 years before the Christian era. The small difference in the position of the sun indicates the difficulty of fixing the age of a monument by this means.

Further important measurements of the slope of the ground and of evidence of artificial earthworks can easily be obtained with a level or theodolite. Cross sections in the direction of the maximum slope of the ground, such as that shown on the left of the diagram, would show the shape of the vallum and enable contours to be drawn if necessary. This information, together with what may be got from the Ordnance sheets, would enable the accessibility, security from attack, etc., and any other considerations to be judged in relation to any theory.

J. S. WILSON.
G. A. GARFIT.

Central Africa.

Stannus.

A Rare Type of Musical Instrument from Central Africa. By 20 *Major Hugh S. Stannus, M.D.*

Some eight or more years ago there came into my possession, while stationed in Nyasaland, a musical instrument which was quite new to me, I had never seen one before nor heard it described by natives; it was shown to a number of Europeans in the country, but none recognised it. It was then sent to the British Museum, where it now remains, and Mr. T. A. Joyce informed me that, so far as he was aware, no other example existed in Great Britain.

The native, from whom I obtained the instrument, informed me that he lived between Zomba and the plain around the southern end of Lake Chilwa in Nyasaland, and that it was an instrument used by the A-Nyanja, that he kept one in each of several villages whither he went to hunt, as it was used only in hunting. He stated that the instrument, when played in the village, causes the water-buck to herd together near by, while the other antelope run away and herd together at some distance. The hunter may then go forth from the village and slay the water-buck without difficulty.

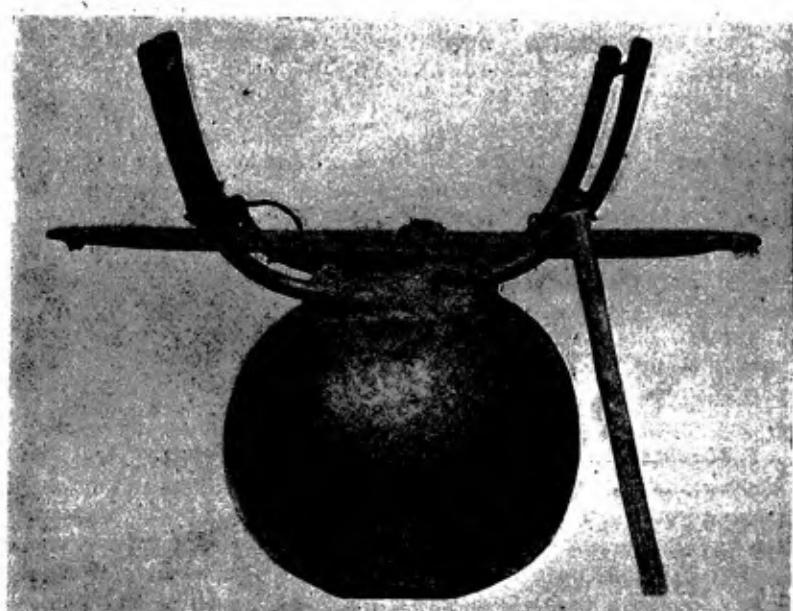
The instrument was stated also to be used as an accompaniment of some of the men's hunting dance-songs. The name given to the instrument was "Limba," a Chinyanja word also used, I think, for a type of xylophone. In speaking of the instrument in English the native used the word "drum," and the sound emitted is

that rather of a drum than of a xylophone. In structure it is a xylophone, but it is used as a solo drum.

During the next seven years following this first observation, no further example was ever seen or heard of. Recently, however, since returning from Africa, I discovered, in the Pitt-Rivers Collection at Oxford, another specimen, which, by the kindness of Mr. Henry Balfour, I was allowed to examine. That authority told me that he knew of no other example, and that he had no further information about the specimen than was contained on the label, which read "Limba Xylophone, used after killing hippopotamus.—Awemba, Wabisa, Mpika, North Western Rhodesia.—Presented by F. H. Melland, 1911," except that it was used as a ceremonial instrument only on the occasion above mentioned.

It had been my intention to publish a note on my own specimen long ago, but now that we possess two examples in England I think it is essential that this unusual and apparently rare type of instrument should be put on record.

A very good idea of the "Limba" will be obtained from the photograph. It will be seen to consist of a gourd resonator 27 centimetres in height and 97 c.m.



in circumference. The depressed base of the gourd is bottommost and allows of the instrument resting flat on the ground. In the upper convexity a hole has been cut out, and round the edges of the aperture has been moulded a mass of raw rubber, leaving the aperture of somewhat irregular shape,

roughly 10×8 c.m. Bound to the gourd by the rubber mass, are two curved supporters, each 61 c.m. long, made of the stem of the rubber vine, whose free ends project upwards, each pair at either side being held in position by a splinter of bamboo. These supporters lie 11 c.m. apart at the mouth of the gourd, but distally the distance between them is 20 c.m. The free ends of each supporter are 40 c.m. apart. Suspended from these curved supporters, by means of hide thongs, is a strip of wood, spatula-shaped at each end, and 62 c.m. long, with a breadth, at the middle point, of 7 c.m. About the middle of the upper surface of this wooden slat is fixed a small mass of raw rubber upon which percussion is made with a stick 40 c.m. long.

The note emitted has a drum-like quality with a timbre peculiar to itself. When being played the left hand is inserted into the aperture of the resonator and withdrawn with a sliding movement, producing a damping effect.

Of minor detail, it will be noticed that the right-hand near supporter has three

holes drilled in it for attachment of the thong, and that the same is true of the left-hand off supporter, while the other two have each only one perforation; further, that the wooden slat has two sets of holes to right and left; these are apparently for purposes of adjustment. The lowest holes in the supporters are 18 c.m. from the mid-point, and the holes in the slat are 16 and 20, and 18 and 20 c.m. from the mid-point respectively.

The specimen from Mpika is a very much smaller variety than my own, the gourd resonator being about 25 c.m. high, and having a circumference judged at 35-40 c.m. It differs in one other particular, the wooden slat is suspended so low and the mouth of the gourd resonator is so small, that it is quite evident that it was played without obtaining the damped notes so characteristic of the Nyasaland specimen. There is also no pad of rubber on the slat, and it is doubtful whether it was played with a stick or with the fingers; with the exception of these trivial differences, the construction is essentially identical in these two single examples obtained from places so remote from each other as Mpika and Zomba.

I can at the present time offer no explanation of the relation between these two specimens, but am inclined to believe that the idea, not the actual specimens, may have been imported into Nyasaland from N.W. Rhodesia by some isolated individuals; but I hope that, by so calling attention to the point, others may be able to bring evidence to throw light on the matter.

H. S. STANNUS.

Wales : Archaeology.

Graig-lwyd Excavation Committee.

21

A representative committee has been inaugurated for the purpose of carrying out excavations at the Stone-axe Factory at Graig-lwyd, Penmaenmawr, which appears to be one of the most important prehistoric sites in the country. A preliminary paper, by the secretary of the present committee, was read before the Royal Anthropological Institute, on November 11th, 1919, of which an abstract appeared in *Nature*, November 27th, page 346.

A series of specimens has been presented to the British Museum, Bloomsbury, and a few also to other Museums.

The present imperfect knowledge of the site gives good promise that most interesting results may be anticipated from further investigation. The main purposes immediately in view are:—

1. To obtain further information on the prehistoric methods of working the stone, and of the range of types of the finished stone axes.
2. To elucidate the conditions of life and culture of the axe-makers.
3. To seek for evidence of more exact dating of the industry; in particular it is hoped that by trenching a contiguous turbar the contemporary climatic conditions may be inferred from a study of the peat flora.
4. To identify stone axes made at the Graig-lwyd factory which have travelled to other localities along trade routes, or in the course of tribal migrations, and the like.

It will also be the work of the committee to arrange for the publication of the results, and to distribute the remains found (which will probably be numerous) to various public museums.

The committee invite donations to meet the cost of the proposed excavations: it is intended that the work should be put in hand as soon as the necessary arrangements can be made, and donations may be sent at once to the Royal Anthropological Institute, 50, Great Russell Street, W.C.1.

The following form the nucleus of the committee, appointed by the Institute :—

Sir Everard im Thurn, K.C.M.G., C.B. (*President of the R.A.I.*).

E. N. Fallaize, Esq., B.A. (*Hon. Secretary R.A.I.*).

H. S. Harrison, Esq., D.Sc.

Professor A. Keith, LL.D., M.D., F.R.C.S., F.R.S.

A. L. Lewis, Esq., F.C.A.

Professor W. Wright, M.B., D.Sc., F.R.C.S., F.S.A.

R. W. Williamson, Esq., M.Sc. (*Hon. Treasurer R.A.I.*).

Ivor E. Davies, Esq. (*Local Secretary*).

S. Hazzledine Warren, Esq., F.G.S. (*Secretary*).

Other bodies having special claims upon a Welsh site are being invited to appoint other members on the committee, and to co-operate generally in the work.

Mendi: Anthropology.

Migeod.

Mendi Drum Signals. By F. W. H. Migeod.

22

Signalling by drum is extensively practised in Africa. Different tribes have, of course, different codes which are not known to other tribes unless learnt. A few inquiries and tests which I made with Mendi resident in the Gold Coast Colony I note here.

I was informed that the following, amongst other messages, can be signalled :—

1. That food is ready, but not the nature of it.
2. A sum of money such as 10s. can be signalled.
3. Calls to dances and Poro meetings.
4. Personal names.
5. Announcing a death.
6. Announcing an animal has been killed in the bush.
7. Calls to come and gamble.

I give one of the last here.

Go! Go! - - - War! (The word used for gamble). War!
 A mu mehei me-o! - Let us eat food!
 A wa a shilli' yira-o! - Come (plural) with one shilling.
 A wa a penny yira-o! - Come with one penny!
 A wa ka-ka-ka-ka! - Come quickly!

Returning one evening from the bush after dark, I heard rather a better drummer than usual performing, and inquired who it was. The best drummers, I may mention, do not leave their own country. I told the man with me to take 3d. and give it to the drummer and tell him to call up my boy Mosey at the house, which we had not reached yet, and tell him he was a fool. The distance was about a quarter of a mile with bush between. When I reached my house I waited a bit, but no drum was yet heard. Presently I heard a strange call which was certainly not Mosey's name. I asked Mosey who was being called. He did not know. Soon my messenger came back and reported the drummer himself had just gone away, and another man had picked up the drum (sangba) to call him. I had my bath, and was just drying myself, when I heard the drum say "Mo-sey! Mo-sey!" Mosey heard it too, and said he was being called. Presently it said, "Mosey! kiri-kiri-kiri-kiri." Mosey said, "They are cursing me."

I then sent a second message to the drummer, which was to tell Boma, my cook, there was a girl waiting for him outside the village and she was a virgin. By-and-bye came "Bo-ma! Bo-ma! Bo-ma!" and Boma came out of the kitchen to hear what the drum had to say. Instead of telling him about the girl it said, "kiri-kiri-kiri" to him also. Boma gasped and said, "They are cursing me too." I said that had cost me 3d.

My message was evidently too difficult. Anyhow, in the first place virgins are few, and if there were any no sane drummer would blurt out into the night air there was a virgin waiting. So it is scarcely likely such a message could be coded on a drum.

I was informed that the fact that a woman had eloped could be signalled on a horn but not on a drum. This may be so, but my informant may not have heard it otherwise than on a horn.

F. W. H. MIGEOD.

Yoruba: Folklore.

Wyndham.

A Cure for Sudden and Serious Illnesses. By J. Wyndham.

23

The priest puts pepper (*atáre*) into his mouth and recites:—

<i>Akéleja!</i>	-	-	-	A spirit who grips a man by the throat and makes breathing quick and uneasy.
<i>Akélejá!</i>	-	-	-	A spirit who causes eye-disease.
<i>Akélewóssa!</i>	-	-	-	Spirits which trouble sick persons.
<i>Amúrorfáshorgérrè!</i>	-	-	-	Spirits now called Anjanu, who cause delirium.
<i>Amúlepásheyé!</i>	-	-	-	One who causes bad belly-ache.
<i>Ojobolóro!</i>	-	-	-	Spirits who cause severe head-aches.
<i>Ábiyéti-ashórmunyányán!</i>	-	-	-	One "who has a very sharp edge to his cloth," and causes back-ache.
<i>Asá-ntétté-mofárapá!</i>	-	-	-	Imps seen at night in white cloths. Now called Elére. They afflict children.
<i>Olómo-áro, niyéye éshukú!</i>	-	-	-	"Olomo-aro, who art the mother of evils." She does no harm, but is invoked because her children, already named, will listen when prayed in their mother's name.
<i>Arónposhé Íreké!</i>	-	-	-	The husband of Olomo-aro and the father of the evil spirits. If he is not invoked the sick man dies. He is also called upon to stop his sons' mischief.
<i>Íshukú den lényimí!</i>	-	-	-	"Evil, leave my back!" When this has been spoken, the spirits leave the sick man.
<i>"Bi Ébúra Nla ba de eti omi, apéyinda."</i>	-	-	-	"If the Great Evil comes to the river's bank, he will turn back."

Ébúra Nla is the master of all the evils. If called by the other spirits, he comes to the further bank of the river Arénkenken, which is described as the "water of Heaven." If he crosses to the near side, the sick man dies.

After finishing the incantation, the priest takes some of the pepper from his tongue and puts it on the patient's head. The patient recovers, and is able to take nourishment at once.

[The Yoruba of this is probably archaic. The interpreter did not understand it, and the Babaláwo had to explain.]

J. WYNDHAM.

Yoruba: Folklore.

Wyndham.

Ajija (The Dust-Devil). By J. Wyndham.

24

Ajija was a doctor who lived with Arámfe, and came to earth with another doctor. They made various medicines—one to kill a man when asked to do so. He pronounced certain words, and the man died. He could also kill with his walking-stick. He lives on Oke Arámfe (Oke Ora), and can only be approached through Arámfe (the father of the gods), because he is a bad man. He is worshipped near Arámfe's shrine.

When he wishes to make trouble, he comes through the town. He sometimes sets fire to a house by picking the fire up and putting it on the thatch.

When a man meets Ajija, he should protect himself by putting pepper in his mouth and saying : " Áhan-ríyen, Fágada Shäomi" (names of Ajija), " ki iru re bomi " (put your tail in water). The man should then spit the pepper at Ajija.

Sometimes Ajija turns into a big lizard.

According to another story Ajija is a devil with one leg, who throws men down and breaks their ankles.

J. WYNDHAM.

India: Religion.

Raman Manon.

Ancestor Worship among the Nayars. By V. K. Raman Manon. 25

Malabar, on account of her seclusion, occupies a unique position as regards her culture. Shut off by mountains which warded off the Aryan influence, for a long time she has been able to preserve something of the cults of her old inhabitants side by side with the more humane Hindu culture. Among the undoubted Aryan castes the belief in the magic of the aborigines and even some of their cults are found. The Nayars come between the two and partake of the characteristics of both the aboriginal and Hindu cults. The Nayars are a matrilineal people, and they regard as their ancestors (*karanavar*) their maternal uncles, who are worshipped in most Nayar houses. It is called " setting up the ancestors " (*karanavarē-kudigiruthuka*). Generally this is done in the innermost room of the house (*arah*) where jewels and other valuables are kept, and often an oil lamp burns all the time (*keta vilakku*). Once a year worship is offered to them. The time for ancestor worship, as for other cults in Malabar, is in the midst of the rainy season in the month of *Karkitugom* (July-August). They place a banana leaf in front of an oil lamp, and on it a newly-washed cotton cloth (*mattu*), a cocoanut, betel leaves, arecanut, &c., which are considered auspicious. They then offer to the spirits of their ancestors sweets and powdered rice (*varapoti*), meat, red-coloured water (*guruthi*, to represent blood), and toddy. The ritual is performed either by the head of the household who would be the maternal uncle, or it is performed by some one reputed to be a magician. The family is assembled towards the close of the worship to partake of the leavings of the sacrifice. It often ends by one of them acting as a *shamon* representing the dead ancestors. He, in his frenzy, utters prophecies and threats and thanks the household on behalf of the ancestors. This is called the dance of the ancestor (*karnoor thullal*). After that the sweetmeats, etc. are distributed and the men drink toddy and make merry. This is the general custom. This ceremony is called a *kalasam*.

Sometimes they make idols of some celebrated *karanavars* of the family (*tharvard*), and set them up in the inner courtyard. Only those who have shown themselves of some importance in their lives are honoured. Generally merit as a great magician or a wonder-worker is so rewarded. Those also whose spirits after their death trouble the family are set up and worship is offered to them. The figures are made either of wood (especially of the Jack tree) or of granite. To them worship is offered just as described above. They are set up either in the courtyard or the south side of the house, where the dead are usually cremated.

Many misfortunes occurred in the family of a poor man I know, a short time ago. He consulted an astrologer, who told him it was due to the anger of the dead ancestors and their spirits. The poor man mortgaged his house to get the few hundred rupees needed "to set up" his ancestors. This is for a negative benefit. Another recent example has been told me. In a small village called Manjapara there is a well-to-do family. Many years ago there was a man there named Kesava Pillai who was a great devotee of god *Sastha* of the Souris Temple on the Western Ghats. People go there once a year on a certain day in January. One year in January he was detained. He was free to go only one day before, and it took about ten days to reach the place on foot. Nevertheless he started on the pilgrimage. Near his house

he met an old Brahmin with a lamp, who conducted him in a night to the temple. After this incident his reputation was established. On his death his figure was set up within the walls of a local temple. This is quite a modern instance. I have met people who have seen the man.

Near Triprayar, an important temple of the Cochin State, there is a small grove dedicated to one Ithikkattu Kali. She in her life was a *paraya* woman well known for her terrible magical powers. After her death she was set up in this grove. There the priest is a *paraya*. If anyone wanted to hurt an enemy he goes there and pays something to the priest. Then the enemy gets ill. He can be cured only by paying double the amount spent by the priest. This is still a working belief as I know in the case of a near relative of mine.

Ithikkattu Kali was once a *paraya* woman, now she has become a divinity with power to hurt. Soon justificatory myths will be invented to show that the divinity belongs to the troop of Bhuthas who do the bidding of Siva. This shows us how a family deity can grow into a local deity and finally be included in the popular Pantheon. This cult is fast becoming an under-world cult. Many are chary of acknowledging that they have "set up" *karanavars* in their houses. The reason is because at the worship good use is made of the intoxicant toddy. It is almost impossible for an outsider to detect this cult. There is also the practice of setting up these *karanavan* or other family deity in the local temple and giving some money to the priest to perform the *puja* or worship. Thus the family cult is merged in the local cult and the spirit of the *karanavan* in course of time is identified as an attendant spirit of the local deity.

The following story from a folk song taken down by the writer from the mouth of an old servant illustrates the belief :—

"A mother had two sons. The elder went on a visit to a distant land. His younger brother was betrayed by his uncle to a neighbouring family who was at vendetta with the boys' family and he was to be executed the next day. The mother wanted to send a message to her elder son. At night he slept by the wayside; when he awoke he found himself in the distant land. By the help of the ancestors the brother returned and rescued the boy."

V. K. RAMAN MENON.

REVIEWS.

New Guinea: Folklore.

Landtman.

The Folk-Tales of the Kiwai Papuans. By Gunnar Landtman, Ph.D., Acta Societatis Scientiarum Fennicæ. Tom. XLVII. Helsingfors. 1917. **26**

Dr. G. Landtman, Lecturer in Sociology at the University of Finland, Helsingfors, spent two years (1910-1912) in the country of the Kiwai-speaking Papuans, and has already published several papers on their ethnography. The present monograph of their folk-tales consists of 571 pages and contains 498 tales, besides allusions to many other versions. In the introduction Dr. Landtman gives an account of his method of collecting the stories and the way in which the natives recounted them. A short account of the natives affords a useful preliminary setting for the tales; these are grouped under twenty headings, and a synopsis of the plots of the tales precedes their narration in full. The memoir concludes with a list of the geographical names mentioned in the tales, references to certain noteworthy incidents and details which recur in different tales, and a subject index. There are 42 illustrations, some of which are drawings by natives to illustrate incidents in the tales, and a sketch map of the Western Division of British New Guinea. From the foregoing summary it will be evident that Dr. Landtman has produced a workmanlike monograph, as, in addition to the tales themselves, he has

taken great pains to facilitate their investigation by other students, and for this he has earned our sincere thanks.

The tales are so varied that there is material for students in all departments of ethnology and folklore. Those treating of courtship, marriage, sexual life, the family, agriculture, ceremonies, communication, hunting, fighting, and the miscellaneous tales of narratives about people and social practice, shed light on the habits of the people, and should therefore be studied by sociologists. Certain recent movements of the people are recorded in the section dealing with legendary history, and the effect of the contact of peoples is shown in the sections on communication and fighting, but the culture-historian will have to consider a much larger series of tales. The mythologist will be more interested in the stories of fabulous men and women, the spirits of the dead, mythical beings, culture myths, the origin of ceremonies, dreams, the tales of heavenly bodies, a deluge, etc. The comparative psychologist will everywhere find ample material. There is also a considerable number of tales of people with grotesque and monstrous bodies, people engaged in fabulous occupations, tales of animals and plants.

This collection should be compared with the tales narrated in Vols. V and VI of the *Reports of the Cambridge Expedition to Torres Straits*, as both areas constitute one ethnographic province. Many points which are obscure, or incidents which are contracted in the Torres Straits tales, receive elucidation from the Kiwaiian narratives. Thus, at the time of compiling the stories about Sida (*Reports*, V, pp. 28-36; VI, pp. 19-23), I noticed some discrepancies that I could not account for, so I am not surprised to find that there were two culture heroes of the mainland, Sida and Soido, stories about whom have not unnaturally been confounded together by the islanders (Landtman, pp. 118, 123). On the other hand, stories about Torres Straits noteworthies, such as Naga, Kwoiam, and Sesere, are told on the mainland. Many tales in both areas have similar incidents but differ in details; for example, a tale of the Masingara bushmen about Dari (p. 418) is paralleled by the Miriam tale of Kultut (*Reports*, VI, p. 11). Both had a very long arm by means of which they stole food; the arm was cut off by some women from whom the food was stolen. Incidents in common are: Children may be produced from eggs, they may grow up very quickly; certain beings who are provided with enormous ears use one of them as a mat and cover themselves with the other when sleeping; mythical beings personate women; people are transformed into stones; men transform themselves into animals; and many others.

In his valuable book, *The Mythology of all Races: Oceanic* (Boston, 1916), Professor Roland B. Dixon says, "The material on the mythology of Melanesia, though incomplete and fragmentary, appears rather clearly to prove the existence of two distinct strata, one of which may be called Papuan, the other Melanesian. . . . What has been called the Papuan type of mythology seems to be characterized by a relative absence of cosmogonic myths, by the prominence of ghosts, and by a general simplicity and *naïveté*; and this category also appears to show an extensive development of tales of local distribution only, corresponding to the discreteness and lack of relationship on the linguistic side. The Melanesian stratum, on the other hand, exhibits a considerably greater evolution on the side of cosmogony, an especial fondness for cannibalistic tales, and a rudimentary dualistic character which is revealed in the many stories of the wise and foolish culture hero brothers. Further examination of this Melanesian type seems to indicate that it is by no means a unit" (p. 148).

The Kiwai-speaking people, like the Torres Straits islanders, may be regarded as essentially Papuans in the racial sense of the term, and their language is Papuan, as contrasted with Melanesian. It is true that certain non-Papuan cultural influences

have spread over the area, having no doubt come down the Fly, but not with anything like the strength that the Gogodara, Kerewa, and Namau cultures have drifted from more northerly regions of New Guinea (Haddon, *Journ. Roy. Anthr. Inst.*, XLVI, 1916, p. 334; MAN, 1918, 99; MAN, 1919, 91). Cultural influences have spread from northern Melanesia to the north-east coast of New Guinea, and thence southwards, but there is no trace of cultural borrowing from the Papuo-Melanesians of the south-eastern portion of New Guinea in the Western and Delta Divisions of British New Guinea, and only superficial and quite recent borrowings in the Gulf district.

We require more collections of folk-tales from New Guinea before it is possible to determine which tales are truly indigenous, i.e., Papuan, and which are intrusive. So far as our limited information goes, the magnificent series of tales collected by Dr. Landtman supports the general and tentative conclusion arrived at by Dr. Dixon, and we may therefore regard these tales as essentially of Papuan origin.

A. C. HADDON.

Ethnology.

Balfour.

The Mystery of Easter Island. By Mrs. Scoresby Routledge. London : Sifton, Praed & Co., Ltd. 31s. 6d. net.

27

The great interest which was aroused by the enterprising expedition to Easter Island undertaken by Mr. and Mrs. Scoresby Routledge, has led to eager anticipation of the publication of an account of the voyage and its scientific results. The volume now before us is, therefore, most welcome, and it proves, moreover, excellent reading. The main objective of the expedition was to explore Easter Island, or Rapa Nui, as thoroughly as possible, and to wrest from it what evidence could still be obtained as to the old culture of the islanders, the diagnosis of which has proved so baffling a problem. The results of Mr. and Mrs. Routledge's investigations have fully justified their sporting and plucky venture, and not only has valuable new material been brought to light, but scientific interest and activity have received a fresh stimulus, resulting in renewed efforts to tackle the mysterious and unique cultural features of this remote volcanic islet.

The expedition started from Southampton on March 25th, 1913, and arrived home on June 23rd, 1916. Three years and a quarter of travel and research, during which period the world's upheaval had taken place, involving the seafarers in serious risks other than those liberally provided by Nature. The yacht "Manā" was, indeed, happily named, and her "luck," in spite of some severe tests, held throughout a voyage of more than 100,000 miles, no mean undertaking in a small schooner-rigged vessel of 91 tons gross. She was specially designed and built for the expedition, and certainly did justice to her designers. The narrative of the voyage, with the description of the scientific work, is attractively told by Mrs. Routledge, who is responsible for the greater part of the volume and has proved an excellent chronicler, endowed with an easy style and a sense of humour. The last fifty pages or so are from her husband's pen, and deal, in a very racy and refreshing style, with the vessel's homeward voyage from San Francisco, via the Panama Canal and Azores. The outward voyage was via the Canary Islands and the Magellan Straits and Patagonian Chaunels, the passage through which is very interesting reading.

The *pièce de résistance* is, however, Easter Island, which was reached on March 29th, 1914, and upon which the shore party sojourned until August 18th, 1915. The 16½ months were fully occupied with strenuous work, in investigating and tabulating the remains of the older culture (or cultures) and in gaining as much information as possible from the present inhabitants, both as regards the past and the present lore of the islanders. A native rising and unwelcome visits of German warships created unpleasant diversions.

A careful study was made of the remarkable *ahu*, or dry-masonry terraces, which were formerly used as burial places, and upon which stood many of the huge monolithic statues, crowned with immense "hats" of red vesicular lava procured from a special crater-quarry. Some 260 *ahu* were located, principally around the coast, a few only being inland. Their structure and varieties are described in some detail and diagrammatic plans are furnished. Most of the *ahu* have been partially, some wholly, destroyed, largely by human agency, the stones having been extensively used for building walls in recent times, so that an accurate study is a matter of much difficulty. Others show evidence of having been taken down and reconstructed upon a different plan. Out of this confusion the explorers have contrived to piece together the available information, and have arrived at many of the important details of form and structure. Although stone-work terraces are known in other parts of the Pacific, the typical forms of the *ahu* of Rapa Nui appear to be peculiar to the island, and it is hard to find analogies elsewhere.

Perhaps the most interesting portion of the book is that which deals with the monolithic statues, of which a very large number is recorded. Their situations have been carefully noted. With very few exceptions, they are all made from the compacted volcanic ash quarried from the sides of the crater of Rano Raraku, near the S.E. angle of the island. The shaping was mostly done on the spot before the images were finally detached from the rock-mass by undercutting. Some embellishing details were, however, often added after the images had been transported from the quarry to the spots where they were erected. A study was made of the methods pursued in hewing out the statues with heavy, rough stone pecking-tools, a large number of which were collected. It was estimated that the process of roughing out a statue could, with continuous work, be accomplished in about fifteen days, a surprisingly short time! The largest statue in the quarry measures 66 feet in length. Though many of these images do not appear to have been intended for removal from the quarry, a large number, measuring up to 36 feet in height, were transported for erection on the *ahu* or upon other sites. How the transport, often to considerable distances, was effected is one of the still unsolved mysteries of Easter Island, which seems incapable either of supporting a large population or of affording material for an unlimited supply of cordage for hauling purposes. The erection of the colossal images under these circumstances must also have involved great labour and difficulty, though there is evidence as to some of the methods employed. The significance of the statues is not clear, though they appear to be associated with ancestors, in some cases, perhaps, deified, and to have been related to some extent to the bird-cult. Their true importance will probably never be known.

Although no fresh examples of inscribed wooden tablets were discovered by the expedition, the celebrated script (*rongo-rongo*) of Rapa Nui was not neglected, and many endeavours were made to gain information as to the meaning of the ideographic signs which have proved so baffling. If these enquiries yielded little of crucial importance, an interesting discovery was made, in the form of an old man, Tomenika by name, who still vaguely remembered a somewhat debased form (*tau*) of the script, which he formally employed. Unfortunately, the old man was grievously ill and confined to the leper colony, and but little information could be extracted from him. He died a fortnight later, and with him the last feeble direct link with the script has passed away. The general impression derived from the scanty evidence available was that the ideographic symbols were in the main *aides mémoire*, decipherable by the writers of, and by those specially acquainted with, the particular tablets; and it is doubtful if any inscriptions could be read by all those who were versed in *rongo-rongo*. Comparative study may yet, perhaps, throw some light upon this peculiar script, though no strict parallel to this developed

system of mnemonic record appears to exist elsewhere. It was stated that the original symbols were brought to Rapa Nui by the first immigrants.

The carved wooden human figures (*moai miro*), so familiar in museums, while exhibiting several features differentiating their type markedly from that of the stone statues, are none the less shown to be linked with the latter. Some of the details of carving, especially upon the backs of the figures, bring out this affinity very clearly; but why the facial type of the two series of wooden and stone figures should have been conventionalized upon such different lines is puzzling. The condition of extreme emaciation represented in so many of the wooden figures is as yet unexplained, though a curious parallel to this is seen in figures from the Chatham Islands.

One of the most peculiar and important cultural features of Rapa Nui is the elaborated bird-cult, which was developed around the seasonal migrations of the Sooty Tern (*Sterna fuliginosa*). This bird arrives in great numbers to breed upon Motu Nui, a small detached rocklet. The central feature of this cult was an annual race to secure the first egg of the season, the winner becoming the "bird-man" of the year. The village of Orongo (on the lip of the crater of Rano Kao), a group of low stone-built huts surrounded by sculptured rocks, was the ceremonial centre of the cult, which has many very peculiar features. A point of very considerable ethnological interest arises in connection with the observances, and particularly with the very numerous paintings and bas-reliefs representing in some cases actual birds, in others anthropomorphic birds. While a certain number of the figures probably represent the tern, a large proportion undoubtedly portray the frigate-bird, a bird little if at all known in the island. It seems more than likely that these frigate-bird designs were reminiscent of a former cult associated with *this* bird, the memory of which was retained by early immigrants from the west, and was preserved in the traditional conventionalized renderings of the frigate-bird. These symbols of an obsolete cult persisted in the art, in spite of this bird having ceased to be the cult *motiv*, so to speak, when it was superseded by the tern, together with a new form of bird-cult. We do not know whether the cult of the Sooty Tern was introduced by later immigrants or whether it was wholly evolved in Rapa Nui.

The results of comparative study point very markedly towards Melanesia as the source whence the frigate-bird *motiv* was derived. Comparison with the art, more especially of the Solomon Islands, brings out many very striking resemblances between the culture of that Melanesian group and that of Easter Island. This close parallelism is seen not only in the designs painted or sculptured on rocks, but also very strongly in the symbols of the *rongo-rongo* script, and in the rendering of the human features on the stone statues. Several other cultural features point to a strong Melanesian affinity, such as the great distension of the ear-lobes, the form of the tanged *mataa*, or obsidian blades, and the use of the double-outrigger canoe, &c. The evidence of Melanesian influence which is manifested in the older culture of Easter Island, is amply supported by craniological investigations. A large percentage of skulls examined have proved to be of markedly Melanesian type. Volz, Keith, Joyce and Pycraft are all agreed upon this point, and even thirty years ago Hamy recognised a non-Polynesian element in the skulls examined by him, which appeared to him identical with skulls from New Guinea. Native traditional history, though very vague, at least differentiates between the "Long-eared" and the "Short-eared" peoples, and dwells upon their mutual antagonism, which seems to have resulted in the virtual extinction of the former. If the "Long-eared" were, as is highly probable, Melanesians who arrived at Rapa Nui prior to the Polynesian immigration, some inkling as to the origin of the script signs may yet be gained. The statement that the written symbols were brought to the island by the first immigrants, becomes very suggestive when we note

how many of the ideographs find more or less exact parallels in symbolic designs occurring in the Solomon Islands. The persistence of the frigate-bird *motif* would also find a ready explanation. To this Melanesian Group we should more specially refer for further elucidation of the ethnological problem.

After leaving Easter Island, the expedition visited Pitcairn Island for a few days—too short a time for any detailed work—but a fine series of local stone implements and two lineal descendants from the "Bounty" mutineers were collected; the latter formed part of the ship's company on the homeward voyage, *via* Tahiti, Oahu and the Panama Canal, to which lack of space forbids reference.

The British Museum and the Pitt Rivers Museum at Oxford have been considerably enriched with specimens collected on Easter and Pitcairn Islands, through the generosity of Mr. and Mrs. Routledge.

The book is not only brightly written, but also excellently and copiously illustrated. One notes with great pleasure a statement in the preface, to the effect that a second volume, dealing more fully with the scientific details, is in prospect. One misses a bibliography of Easter Island literature, which would have proved a useful appendix to the present volume. It is a pity that the printer's ideas of alignment are not more "orthodox," and we may deprecate the treatment of the design on the outside cover, representing a rock-sculptured figure of a "bird-man" carrying the sacred egg. The triangular space between the chest, knee and elbow of the figure should not have been filled in. The "incorporation" of what is really a part of the background, gives a bloated appearance to the figure, which, although of the highest scientific interest, is already sufficiently graceless. There are a few minor blemishes in the text, but these defects are trifling and do not materially detract from a very pleasing and interesting narrative of a successfully organised expedition, entered upon with enthusiasm and carried out at great expense and often under trying circumstances, but triumphantly. The scientific results obtained have done much to carry a stage further the unravelling of the mystery of Easter Island.

HENRY BALFOUR.

ANTHROPOLOGICAL NOTE.

ACCESSIONS TO THE LIBRARY OF THE ROYAL ANTHROPOLOGICAL INSTITUTE.

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(*Donor indicated in parentheses.*)

Man, Past and Present. By A. H. Keane. Revised and largely re-written by A. Hingston-Quiggin and A. C. Haddon. $9\frac{3}{4} \times 6\frac{1}{4}$. 561 pp., 16 plates. Cambridge University Press. 36s. net. (The Publishers.)

The Ancient Entrenchments and Camps of Gloucestershire. By Edward J. Burrow. $11\frac{1}{2} \times 9$. 169 pp. Many illustrations. Ed. J. Burrow & Co. 21s. net. (The Author.)

Le Sahara Occidental. By Capitaine Augiéras. $10\frac{3}{4} \times 7$. 45 pp. and map. Société de Géographie, Paris. (Société de Géographie.)

Un Essai de Reconstitution Plastique des Races Humaines Primitives. Par A. Rutot. $11\frac{1}{2} \times 9\frac{1}{2}$. 170 pp. 15 plates. 241 illustrations. Hayer, Imprimeur de l'Academie Royale de Belgique, Brussels. (The Author.)

The Burial of the Dead. By W. H. F. Basevi. $7\frac{1}{2} \times 5\frac{1}{4}$. 208 pp. George Routledge & Sons. 1920. 7s. 6d. net. (The Publishers.)

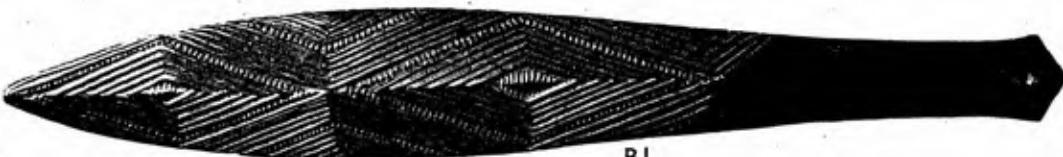
Religion and Culture. By Frederick Schleiter. $8 \times 5\frac{1}{4}$. 206 pp. Columbia University Press, New York. 8s. 6d. net. (Mr. Humphrey Milford.)



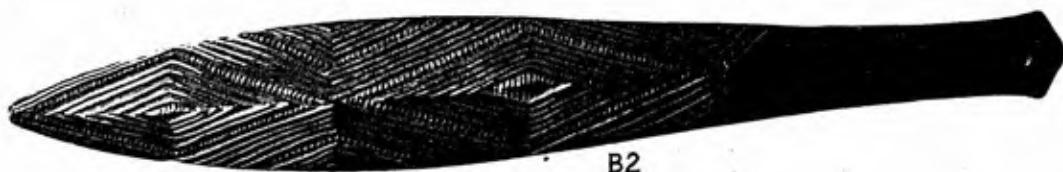
A1



A2



B1



B2

TWO WOODEN MAORI DAGGERS.

ORIGINAL ARTICLES.

With Plate D.

New Zealand.

Ridgeway: Skinner.

On Two Wooden Maori Daggers. By Sir William Ridgeway, Sc.D.,
F.B.A., and H. D. Skinner, D.C.M.

29

The two objects about to be described form part of a small set of Maori trophies brought home by the late Colonel Honner, of Cork, after the first Maori war in 1840-1.

As this war was confined to a very small area in the North Island occupied by the Ngapuhi tribe whose chief Heke cut down the British flagstaff on Maiki hill above Kororareka, and later with his kinsman Kawiti attacked and burned that town, we know the district from which these objects almost certainly came.*

They consist of the following:—

(1) A very fine spear (*toa*) in length 205·5 cm. (6 ft. 8½ ins.), elaborately carved and inlaid with haliotis, except for a space of 5½ ins. at one end and 11½ ins. at the other (Fig. 1, Plate D), though unfortunately most of the inlaying is gone.

(2) A quadrangular staff in length 113·8 cm. (44½ ins.). On opposite sides, about the middle are two male figures facing outwards carved out of the solid, each of which has the thighs tattooed with spirals and the lower parts of the legs with horizontal and vertical lines; the eyes are inlaid with haliotis; at the top of the staff on opposite sides were once two human faces, but unfortunately only one survives, its eyes also being inlaid with haliotis (Fig. 2). The rest of the four sides are decorated with finely executed elaborate carving, there being a line of five sunk lozenges on each side commencing just below the two male figures.

When I acquired it, no other such specimen was known in this country, nor, as far as I can ascertain, is there now. I have been told that there is a similar staff in the Auckland Museum, New Zealand, which is said to have been held by a chief when addressing an assembly.

Mr. H. D. Skinner remarks thus on my specimen: "The ordinary name for a 'staff in Moriori, as well as in Maori, was *tokotoho*. There is an excellent specimen 'of the usual type in the Cambridge Museum of Archaeology and Ethnology identical 'in form and decoration with one figured by Angas on the cover of *The New Zealanders* (1846). In the Bankfield Museum at Halifax is one similar to the 'Cambridge example, except that the symmetrical knob at the top is replaced by two 'human figures facing outwards. This is a step in the direction of the variety 'exemplified by your staff." Such a carved staff would indicate that its owner was a man of standing and would no doubt be used in oratory to add emphasis or enhance the effect of his flowing periods.

(3) A fine club (*tewha-tewha*), the broad part of which is adorned with a beautiful spiral ornament copied from the unfolding frond of a fern, the pattern being called by the Maories themselves *pitau* (fern), with some inlays of haliotis, whilst the handle is elaborately ornamented for a great part of its length by a creature apparently with a human face (the eyes being inlaid with haliotis); its long and intricate body and legs, reminding one of the illuminations of Celtic MSS. may possibly be meant for a lizard (Fig. 3). (4) A plain *tewha-tewha* of hard dark wood of the ordinary business type with 21 bunches of black feathers, probably those of a crow (*huia*) fastened to a hole in the broader part (Fig. 4). (5) A feather-box (*huia-waka* = crow-box), of a somewhat unusual type, but with the customary human head and protruding tongue; one eye has lost its haliotis inlay (Fig. 5).

* A full account of this war is given in *Old New Zealand* by a Pakeha Maori (edited by the Earl of Pembroke, London, 1876), pp. 183-274.

(6) An adze of the ordinary type. The helve from the lower end of the grip to the top of the blade-bed being 49·8 cm. (19 $\frac{1}{4}$ ins.), the length of the blade-bed and blade combined, being 20·3 cm. (8 ins.); the iron blade is 14·1 cm. (5 $\frac{1}{16}$ ins.), the widest part being 4·9 cm. (2 ins.). The flat head of the helve is filled with a single coarse spiral, whilst the neck is well carved for about 10 cm. (4 ins.) (Fig. 6). (7) A small club-like object (Fig. 7) decorated all round the shoulders with linear ornament. (8) and (9) Two large fish-hooks probably meant for catching sharks (Figs. 8, 9). (10) An ordinary Maori dress (*moochee*) made of New Zealand flax (Fig. 10). (11) and (12) The two wooden objects with which we are here concerned (Figs. A 1 and 2, B 1 and 2, Plate D). They are in the shape of daggers; A measures 36·7 cm. (14 $\frac{7}{16}$ ins.) in length and 5·1 cm. (2 ins.) in the broadest part; B measures 34·3 cm. (13 $\frac{1}{2}$ ins.) in length and 4·5 cm. (1 $\frac{1}{4}$ ins.) its widest part. The cross-section in each case is a lozenge, there being a mid-rib down each side of each specimen. The grip in each case is perfectly plain; but that in A has a mid-rib on each side continuing the mid-ribs of the blade; in B the grip is flat, its head being formed by simply bevelling off two sides of the end, whilst in the larger specimen the end of the grip is formed by four bevels (see Figs.). In each case the grip is pierced with a hole for suspension near the head. As the decoration of both sides of each specimen is shown clearly in the plates there is no need to describe it. B has a tapered point capable of inflicting a bad wound, but the point of the other is flattish, either from a bad fall or from having been impelled by force against some hard body.

We have given the account of all the objects because, as the area of the North Island in which the war of 1840-1 was fought is well known, a full account of an associated group may not be without value for the more minute and scientific investigation of local peculiarities in Maori technology.

When Colonel Honner died, these objects passed into the possession of his cousin Mr. Frank Hodder, a leading Cork solicitor. On the latter's death, I purchased them at the executor's sale in 1892 for £2 5s. In those days Cork was a happy hunting ground for the ethnological collector. I have a good specimen of a Mangaia (Hervey Islands) stone adze in its finely carved helve, bought for 5s.

But to return. I had shown the two wooden daggers to all my anthropological friends since 1892, hoping to find out some facts about them. But in vain. Last year I showed them to my friend, Mr. H. D. Skinner, D.C.M., Christ's College, Cambridge, formerly of the New Zealand Division, now of the Museum of the University of Otago, New Zealand. From their carving he thought they might be *potuki* "flax-beaters." I did not feel quite convinced and did not label them as such. Lately I have been re-reading the various accounts of Captain Cook's death. Ellis (*Polynesian Researches*, vol. iv, p. 182, ed. 1853) makes the following statement derived from the natives of the spot: "Captain Cook then endeavoured to stop "his men from firing, but could not, on account of the noise. He was turning "again to speak to us, when he was stabbed in the back with a *pahoia*; a spear "was at the same time driven through his body; he fell into the water, and "spoke no more." Ellis (*op. cit.*, p. 156) describes "the *pahoia*, or dagger," as "eighteen inches or two feet in length, made of hard wood, sometimes pointed at "both ends, and having a string attached to the handle, which passed round the "wrist, to prevent their losing it in action." Both my specimens have the handles pierced with holes for strings which would serve that purpose. The well-known Gilbert Island-weapons of wood pointed at one end and furnished with rows of shark's teeth, may well be another case of Polynesian daggers: a perfect specimen of my own measures 51·6 cm. (20 $\frac{1}{16}$ ins.) which coincides with the ordinary measurements of the *pahoia* given by Ellis. These considerations had made me

begin to think that my two Maori puzzles, after all, might be daggers. At this moment came the following letter (20 Mar. 1919) from Mr. Skinner, replacing my vague conjecture by cogent facts both material and literary:—

" Since I left England I have quite revised my views about those two Maori " articles of yours which I called *potuki*, a change due to consideration of the " following facts:—

Mr. Henry Balfour* has now figured a bone dagger from the Chatham Islands. " The blade tapers gradually to a point and is lozenge-shaped in transverse section. " At its junction with the grip, the blade is shouldered. The grip is circular in " section and terminates in a large rounded pommel, which is separated from the " grip by a groove forming a neck." Tregear's evidence, which is quoted, proves that the dagger is authentic. Mr. Balfour continues: " I can recall nothing resembling " this dagger either from Polynesia, from Melanesia or from Micronesia, and I am " therefore unable to link this form with any type from the Pacific Islands. It " seems likely, in fact, that this type of bone dagger may have been evolved locally. " One would turn to New Zealand in seeking for a parallel, but I can recall no " similar example either from North or from South Island, although Mr. Skinner " and others have pointed out the cultural similarities which indicate a link between " New Zealand (especially the Otago district) and the Chatham Islands."

There can be no doubt, however, that the Maori did occasionally use daggers. A wooden one is figured by G. F. Angas,† and is described as " A wooden dagger; from the interior [of the North Island] near Tuhua." The dagger figured is of wood, and the blade, which tapers gradually to a point, is lozenge-shaped in section. The grip is circular in section, and is terminated by what appears to be a human head. I know of no example from the South Island, but an ancient bone *potuki*, or flax-beater, from the Otago district, now in the Otago University Museum, presents some remarkable points of resemblance. The business end is rectangular in section, the angles being somewhat rounded. For the rest one might quote Mr. Balfour's description of the Moriori dagger word for word: " At its junction " with the grip the blade is shouldered. The grip is circular in section, and ter- " minates in a large, rounded pommel, which is separated from the grip by a groove " forming a neck." It is thus probable that, had a whalebone dagger from the Otago district been preserved, it would have very closely resembled Mr. Balfour's Moriori specimen. That bone daggers, as well as wooden ones, were made by the ancient Maori is indicated by the following, from Mr. Elsdon Best‡: " One Tokowaru, a " warrior of parts, was taken prisoner by a party of enemies under the chief " Te Putu, one fine morn many years ago. Knowing that his feet were already " treading the broad path of Tane to the spirit world, he rushed at Te Putu, drew " his *tete*, a bone dagger, and stabbed him to the heart. As he did so he shouted, " 'Behold the last man slain by Tokowaru! It will be heard of through all the " changing years!' And it was heard of down the changing years, for, three " months ago, long generations after the above occurrence, old Karaka Tarawhiti, a " descendant of Tokowaru, sat on the bank of the Waikato River at Huntly, and " told me the tale But as the rushing blood flowed from the dagger " wound Tokowaru caught it in his hand and smeared it over his head and body, " knowing that the *tapu* of that blood would preserve both from the oven. The " next instant, Tokowaru, of the sons of Raukawa, lifted the old, old trail to the " spirit world."

* MAN, 1918, 80: "Some Specimens from the Chatham Islands." Plate K.

† *The New Zealanders*, 1846. Plate 58, fig. 4.

‡ *Social Usages of the Maori*, 1918. P. 16.

Edward Tregear (*The Maori Race*, Wanganui, 1904, p. 301) writes thus:—
 “ A dagger (*tete*) was a weapon of some tribes. This dagger was of bone, from about
 “ 10 inches to a foot long. The beautifully carved handle and rounded (*sic*) blade
 “ (like a stiletto) was in one piece. The blade was also carved, and it was deeply
 “ barbed backward towards the hilt. It was carried in a sheath (*pukoro*) made of
 “ closely-woven flax. Sometimes one man carried several of these daggers in his
 “ waist-mat or girdle (*maro*).”

Unfortunately Tregear does not quote his authority as to the dagger-blade being barbed. The statement requires confirmation. I think he must have had in mind, perhaps unconsciously, the dagger he had seen some fifteen years before at the Chathams. His description seems to me a blurred picture of the Moriori weapon, his notes on which Mr. Balfour quotes. At any rate, the only Maori example figured is Angas's wooden one, and this has no sign of barbs. A cursory examination of the Moriori dagger might leave the impression that it was barbed, and this is perhaps what happened in Tregear's case.

There exists a whole class of beautifully-carved wooden *potuki* which can never have been put to any practical use. Their exact function has not been recorded, but they were perhaps symbolic of tribal standing. By far the greatest number of these *potuki* are decorated with rectilinear designs, recalling more nearly than any other class of Maori decoration the rectilinear decorative designs of Polynesia. It may be suggested that this kind of decorated wooden *potuki* is descended from the wooden *tapa*-beaters of Polynesia. These beaters are scored with straight, closely set, parallel grooves. The *auta*, or paper mulberry, from the bark of which *tapa* cloth is made, was brought to New Zealand by Maori immigrants, but did not thrive, and only ribbons of *tapa* were made from it. The *tapa*-beater, so important in the social life of Polynesia, would thus fall out of practical use. My suggestion is that it retained only a ceremonial significance, and that its parallel straight grooves conditioned the type of decoration which the Maoris subsequently applied to it.

The two daggers resemble attenuated wooden *potuki* in shape, and it is probably for that reason that a decorative design appropriate to *potuki* has been applied to them.

From the statements of Angas, Best and Tregear, we can have no doubt that some Maori at least, like their congeners of the Chatham, Sandwich, and Gilbert Islands, had daggers of wood or bone, and that the two objects from the North Island above described are two such Maori daggers.

WILLIAM RIDGEWAY.
H. D. SKINNER.

Macedonia.

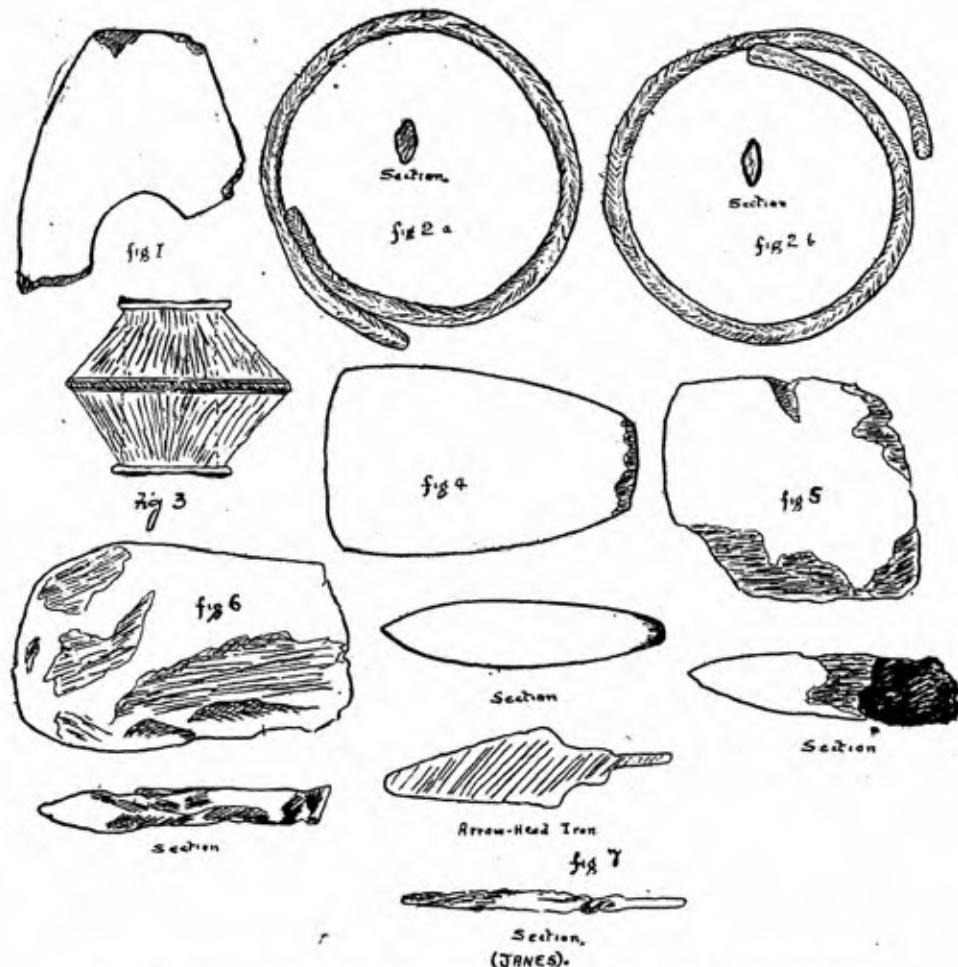
Forsayeth.

A Few Antiquities from Macedonia. By Gordon Forsayeth, Lieut. R.A. **30**

In the early part of the year 1917 I was engaged in digging a position for a gun on the side of an eminence about 50 kilos from Salonika, called Karabac, or more properly Pic de Kretchovo. One of the men on the job brought me a bracelet and wanted to know if it was gold, as where he had scraped it with a knife it shone like that metal. The bracelet was made of bronze, and was without any ornamentation, and was dug up about 4 feet deep. Nothing more was dug up in that place, until a few days later, when I was having a small ammunition dump made I found a quantity of broken human crania and some bits of human long bones. On my digging carefully myself, I came upon a strange collection. I had just laid bare the top of a skull and was gently getting away the hard yellowish clay from it with a jack-knife, when at length I discovered, not a skull, but merely the roof of a skull of a man, convex surface upwards, and immediately beneath it,

the tops of the skulls of what I took to belong to a woman and a child. Each cranium was placed close to the surface of the one beneath it, and there were no remains of the other parts of the skulls to be found. Beyond a few bits of broken bones, there was nothing else there; no signs of pottery or charcoal. About a few yards away I found a few very small fragments of bronze. The bracelet, as can be seen from the sketch below, is of ordinary shape, and is a lozenge in section.

While some dug-outs were being formed, some 20 yards or so from the gun position, a curious object of bronze was turned up. The drawing (Fig. 3) will give



OBJECTS DUG UP IN MACEDONIA, NEAR JANES AND PIC DE KRETCHOVO AND CAUSSICA IN 1917.

- FIG. 1.—STONE HAMMER (JANES).
 FIG. 2a.—BRACELET BRONZE (PIC DE KRETCHOVO).
 FIG. 2b.—BRACELET BRONZE (CAUSSICA).
 FIG. 3.—BRONZE (PIC DE KRETCHOVO).
 FIG. 4.—STONE CELT PLAN (JANES).
 FIG. 5.—STONE CELT PLAN (JANES).
 FIG. 6.—STONE CELT PLAN (JANES).

a better idea of its shape than any written description. The only ornamentation consisted of diagonal lines marked on the slightly raised rib bisecting the object, which I have endeavoured to reproduce; there is a hole running through, but the edges of the holes at the ends are not finished off smoothly, a fact which seems to

point out that it is not complete. The object itself reminds me of a gold ornament from the Great Clare Find, now, I think, in the possession of Lord Inchequin. Lord Inchequin's ornament, however, has a slit in the edge, running from the central hole to the outside; and also the bronze I found is a good deal larger, perhaps twice as big, as the gold one, and does not appear to be quite so hollow inside.

I heard, about the same time as I found the bronzes at Karabac, that a finger ring of gold (probably bronze) was found by some gunners who were there before me.

My next find took place, also when digging a gun position, near Caussica, pronounced by the natives Tchaushitza. This find consisted of a solitary bracelet, similar to that mentioned above.

Before I came to Caussica, I heard that some men engaged in making a road had unearthed many skeletons, and that each one had some coins near his skull. One man had something like forty or fifty coins, but I never got the chance of seeing them myself. An order also was promulgated that no disinterring of skeletons was to be allowed, which was a pity, as I knew of some mounds near the place where the find of coins took place, and which I wished I could have dug to verify the report.

There is a village called Janes, or what remains of it, some 40 kilos or so N.W. of Salonika. Some quarter of a mile from the village towards the south there is an old road leading to Kukus, which road wanders through a ravine between Flat-Top Hill and a range of low hills of which I cannot recall the name. During the rainy season a small stream runs down this ravine and causes a great deal of the land to become soft and boggy. I had some trenches cut to keep the road more or less passable, and on the earth thrown out of the drain I picked up one pouring wet day an almost perfect stone celt. This is Fig. 4 in the drawing. It is composed of some dark green stone and is well polished, and is perfect, except some small marks of abrasion on the non-cutting end.

After this find I often used to search the sides of the drain, and also the earth cast up from it, but with poor success. In one place I found a hearth, about 2 feet below the surface and about 2 feet deep; but no objects at all. I followed the stream to where it spreads over the land, and during the course of about three months found the following articles:—Part of a polished stone celt, made of light-coloured greenish stone; this is Fig. 5. Also another stone celt (Fig. 6), but far older than the others. This consisted of a stone shaped naturally like a celt, and with a good cutting edge put on by wear. No effort at polishing is visible, and I take it to be palaeolithic, while the other two I should say are neolithic. This last celt is made of a hard yellowish sandstone, and has a very good edge, but is otherwise untouched. Another object I found near Janes was a small iron arrow-head, which must be of a far later date than any of the other objects.

My last find consisted of nearly half a stone hammer. This hammer was not of a very early type, as it was drilled to take a handle. This is Fig. 1.

A friend of mine, Captain Morris, also found some interesting objects about the same period, and also at Janes, amongst which was part of a greenstone celt, which had an edge of quite $3\frac{1}{2}$ to 4 inches. It was, or must have been, a fine specimen when perfect. It was of the polished variety, and of a light greenish-coloured stone.

About the time I found the above, an order appeared that all objects of antiquarian interest were to be sent to the Army, with the intention of their being sent to the museum at Athens, and I think that all the objects which Captain Morris found went there; but I can ask him when I see him to send an article describing them if it would be of interest.

I had no chance while in Macedonia of exploring or excavating any of the many tumuli in that country. One of the tumuli, not more than about 4 kilos from Salonika, had an entrance, and, on my going in through a passage, accumulated with dirt, I arrived at a sort of hall, about 20 or 25 feet square, in which was a sarcophagus, or large stone coffin, with the top slab broken. I had very little time at my disposal, or I should have explored the place and taken measurements. I saw at least eight or ten such conical flat-topped tumuli in various parts of Macedonia, but had no opportunity of examining them. There was one near Vardina, which was a landmark for miles around; it appeared to have a moat around it, and in the distance (I was never closer than 6 or 7 miles) appeared to be a cone with the top missing—a truncated cone.

The flat-top hill near Janes, which I have mentioned above, was a natural hill, about 200 feet high. The top was flattened, probably artificially, and had a ditch and fosse about the top. Whether this ditch was ancient or not I could not say, but there was plenty of evidence, such as cartridge-cases and bits of shells, to show that modern troops had used the fosse as a trench and means of defence. In the centre of the flat top was a heap of stones, beneath which I dug for some 8 or 10 feet, without, however, finding anything of antiquarian interest.

GORDON FORSAYETH.

South America: Rock-Carvings.

Gibson: Cooper.

Rock-Carvings on the Upper Paraguay River. By Sir Herbert Gibson and L. Cooper. **31**

I am indebted for the following note to Mr. Leonard Cooper, F.R.G.S. Captain Bolland, R.N., who surveyed Lake Gahyba for the Bolivian Government, some thirty years ago, refers in his report to the rock-carving near that lake, which was the site of the Puerto de los Reyes founded by Domingo Martinez de Irala in January, 1543, and visited by Alvar Nuñez Cabeza de Vaca in November of the same year.

At lat. $17^{\circ} 45'$ S. the River Paraguay, flowing from north to south, encounters the escarpments of the Acurisal Serrania, and, swinging round abruptly, it flows in a north-easterly direction for a short distance before it resumes its southerly course. At the bend, where it leaves the Acurisal bluff on its right bank there opens a wide channel that gives access to Lake Gahyba on the west. Mount Gahyba, overlooking the lake of that name, and forming part of the Acurisal Serrania, is given a height of 1,600 feet by Captain Bolland. The rock-carving faces the river at the spot where the stream turns to the north-east, and the Gahyba channel opens to the west.

The site of the São Domingo rock-carving is a little south of lat. 19° S. The distance between it and the Gahyba "letreira" is therefore not considerable, and suggests that they are contemporary and the work of the same people. Their design is apparently dissimilar to the rock-carvings of the Oriuoco and Essequibo area, and in the Province of Ceara, Brazil. They seem to be related to calendar or time-count records. The Dakotars made use of circles, joined up by a line in a device similar to the Gahyba "letreira" as a symbol of cycles of time (Fourth Annual Report of the Smithsonian Institute, 1892-83, p. 88). HERBERT GIBSON.

Buenos Aires, July 1st, 1919.

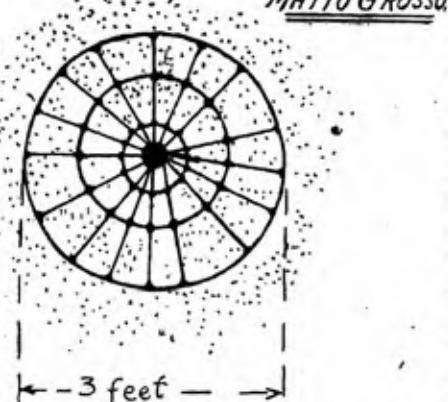
LETREIRA DA GAHYBA.

At the entrance of the Bahia da Gahyba on the right bank is a rock the top of which is about five metres above the water at low river level when I visited it. About three metres above water-level there are several curious marks of very

ancient origin, very much worn by water and weather and no doubt in the rainy season the water covers them. The figures are circles, in one instance three circles carved into the vertical red ironstone rock face with a horizontal line connecting the circles thus:  Another figure is exactly similar to the letreira de São Domingo, south of Corumba, which I visited a short while previously and which is described below. None of the inhabitants in this district know the origin or meaning of these signs. We asked the Indians, and they believed they were made by some animal! In Da Fonseca's book on Matto Grosso he mentions the letreira da Gahyba, but his description and sketch are very poor.

LETRERA DA SÃO DOMINGO.

São Domingo is a farm about five leagues south of Corumba, and here I was shown a letreira, consisting of a number of similar "cart-wheels" carved into the hard red ironstone rock, not a vertical face like Gahyba, but horizontal surface. They are of various sizes, the three largest being about three feet in diameter. The centre hole is one inch in depth and two inches in diameter. The spokes of the wheel and the three concentric circles are almost perfectly round and deeply chiselled into the rock, being one quarter to half-an-inch in breadth and depth. I counted as many as sixteen spokes in the larger wheels. The smallest wheels are not more than nine inches in diameter. They are not nearly so weathered



as the Gahyba examples, but evidently made by the same people. There is also the impression of a man's foot and a tiger's paw cut on the rock.

LEONARD COOPER.

Mathematics.

Thomas.

Duodecimal Base of Numeration. By N. W. Thomas.

32

In MAN, 1920, 14, I discussed the duodecimal system of Northern Nigeria; the note was in type when I discovered four additional systems printed by Mr. Mathews in *Varia Africana*, I, 93. I here reprint the earlier portion of these systems, of which the first three are closely related to each other:—

NO.	NUNGU.	S. MADA.	NINZAM.	MAMA AREA.
1	iri, ndindif	eren, -etye	iri	mo'on
2	aha	ehe	aha	bari
3	acha	echa	itra	taru
4	anne	enye	nza	iyenu
5	ata	a to n	etoñ	tonñu
6	ndra	afini	tañ rebari	tañiza
7	tamba	afwa	tañ ba	tañizabari
8	sene	afwotara	tañ dra	yanga
9	sane	afwunye	chra	tinzhenu

No.	NUNGU.	S. MADA.	NINZAM.	MAMA AREA.
10	owo	ekobo	uru	lum
11	opo	helaiobo	ipo	po
12	oso	eswo	tso	so
13	oso ſi iſi	eswolatyē, boren	tsedorī	so kune mo'on
24	oso ſi aha	eswaba	tscha	so bari
144	mina	ndfa	tsetso	so ungun so
1728	mina oso	ndfaswo	iyitso	—

The Mama list is from one up to seven, almost identical with Jarawa, a widely scattered tribe found in various places between 9° and 10° E. and $9^{\circ} 30'$ and 11° N.; one tribelet is a short distance north-east of these tribes; the Mama group embraces the Arum, Barrku, Burrza, and Upye tribes; the name Mada is used by the Hausa; the native names of the two tribes so known are unknown to Mr. Mathews.

I find on a German map (*Grosser Kolonial-Atlas*, 1910, sheet 5) Ninzam in the position indicated by Mr. Mathews.

These lists throw little fresh light on the lists previously published; and it is quite possible that the duodecimal element in them is a derived one, due to outside influence.

The Nungu form *tamba* (5 + 2, not related to Bantu *samba*), explains Mr. Migeod's *vitama*; and the Mada form *aficunye* suggests that my Burum *bitimui* is really from a form *bitunye* (i.e., add four), not from *vitanu*.

Mr. Mathews states that the tribes whose system he records are gradually accepting a decimal system under Hausa and other influence. This affords an obvious explanation of Mr. Migeod's decimal vocabulary, and is what might be expected. As he also states that a number of other tribes, among them are the Kwall or Irigwe and the Numana, north and north-east, i.e., at the top and bottom of the escarpment of the Bauchi plateau, use the duodecimal system, the Burum and the tribes cited from Koelle are thus not necessarily the outlying members but may well be so.

Mr. Mathews points out that the four systems which he records are clearly quinary up to ten, and he suggests (1) that the original system was quinary-decimal, and (2) that the duodecimal system is a recent local invention, built up on the previously existing basis of ten; he points to the identity of the terms for eleven and twelve as a proof of his contention.

If we had lists of all these duodecimal systems, and if they were all of the type of the four printed by Mr. Mathews, his view might be possible; but a comparison of them with the four printed by Koelle and myself shows that in both Koro and (?) Burum there is no trace of a word for ten. It is true that the Burum word *koro** for twelve means ten elsewhere (Ninzam *uru*, Boritsu *koro*); but this is a familiar phenomenon; *keme*,† possibly connected with Bantu *kama*, *kumi* (10) and *kama* (100), means a hundred in many languages of the Coast and Mandingo groups; in Bambara, however, it means eighty; if we suppose that the root signification is "chief" or "head" both in Mandingo and Bantu, all the facts are explained; we have only to suppose that one word was adopted as a numeral in Bantu at an earlier stage in the evolution of the numerals; in this connection it is significant that Mandingo

* We find in Waja a form *toro* for nine, but there is nothing to connect this with *koro*.

† The Bantu word for ten is usually *kumi*, rarely *kam*, *kami*; with this may be compared *kama*, a hundred, very rarely twenty or ten.

tan (ten) seems to correspond to Bantu *tanu* (five)*; Burum may therefore have originally taken *koro* in the sense of twelve; it appears to be related to Ham *šorho*, with the same sense; if Ninzam *uru* is the same word, it points to the Ninzam system having been duodecimalised under Burum-Ham influence.

In connection with the use of *koro* for ten, it may be noted that its use seems to be confined to a comparatively small area; even here, e.g., in Mbarike, a language related to Boritsu, different tribes have different words for ten; in the case cited, *uriyor* and *yom* are used by Mbarike, *kur* by Boritsu; this suggests that the word *koro* in the meaning ten is by no means ancient.

So far as the words for eleven are concerned, they seem to go back to a form resembling Ham *mbonkob* ("take one," or "less one"). The wide use of *so*, and cognate forms, for twelve—it is wanting only in Burum—are taken by Mr. Mathews to mean that the duodecimal system is of recent origin; in reply it need only be pointed out (1) that the facts are equally consistent with its spread, recent or early, from a single centre, and (2) that the wide use of a given term may equally well be a proof of ancient origin; I need only cite the Bantu numerals.

The form of the duodecimal word for twelve, *osog*, throws some light on the question at issue. We have seen that the word for a hundred is derived from a word meaning chief or end; in this connection it may be noted that *ogu* and similar words widely used in the Niger area for twenty, appear to mean "finished" (cf. Mandingo forms *nu yira gboyongo*, *tan fula mugu*, *mothionien*, *muga*, &c.). It is, perhaps, not without significance that a series of languages in the Niger area use *go* or a word resembling it for ten; this may well have the same meaning and have been adopted at an earlier stage; among the languages are Yoruba, Edo, Yala, Kakanda, Eshitako, Ngodsin, Bode, Dosi, Yergum and Waja; in French Equatorial Africa the same word is found among the Gaberi and Dari; the Kaauri have *megu* in the same sense. Other languages used *Sogo* or *dogo* for ten; these include Buduma, Musgu, Abu Sharib, Kaba, Bai, Ruña, Ndjam Somrai, &c.; and in Kuri the word for twenty is *sogo*. There is, therefore, abundant evidence of the use of this root near the area with which we are concerned, and Kagoro, in the immediate neighbourhood of the duodecimal systems, has *soi* for ten in compounds, thus recalling Kuri *sogo* for twenty. It is not unlikely that its original meaning of *go* or *sogo* is "finished."

Osog(o), the duodecimal word for twelve appears to belong to the same series; the Ham form *šorho* (cf. Buduma *šogo*) is an important link which seems to make clear the essential identity of the two series.

If this is the case it is readily understandable how *osog* came to be the form for twelve in the duodecimal systems; it is in no way surprising that great uniformity should prevail in the use of it. If *sogo* was adopted to mean ten, because it meant "end" and ten was the end of the numbers, when the terminal numeral was twelve, not ten, the end of the series would naturally be designated in the same way as in the decimal groups.

I suggest, therefore, that some of the tribes of the Bauchi plateau were originally duodecimal, while others may have passed from a decimal to a duodecimal system to conform with their neighbours; they borrowed terms for eleven and twelve from the duodecimal system and possibly lent a word for ten in return.

Thus, even if we had nothing else to go upon, the recent origin of the duodecimal system and its foundation on an earlier base of ten would be doubtful. But it seems, over and above this, possible that *kob*, the word for ten in Mada, Ninga (?), Yasguia, and Ham, and also found in Tula, is derived from a pre-existing

* We also find *ron* as a Sudanese word for five, while *don* is a semi-Bantu word for ten.

duodecimal system. The Koro word for ten is *ozabe*, i.e., "less two"; Mada *ekobo*, *helaiobo* are similarly *eke-obo* (two less) and *ele(=ere)-obo* (one less), and imply a duodecimal base; they might, of course, be explained as ten, and one-ten, on a base of ten; but both the form of the words and analogy are against this interpretation; for example, we find in Kagoro a form *kobwoiyung* for nine, in which *iyung* means one and *kobwo* is the subtractive element; the word for ten is *tsark* or *son*.

I have mentioned (No. 14) that a partial duodecimal system is found among the Bahuku, or Babvanuma, near Albert Nyanza. The Walegga, in their immediate neighbourhood, form the numbers from eleven to thirteen on a duodecimal base; the Lendu, a little to the north, have an abnormal system in which the even numbers from ten to sixteen have their own names, and the preceding odd numbers are subtractives, while the numbers from seventeen to twenty are on a base of sixteen. Another abnormal numeral system is that of the Pangwa, north-east of Lake Nyassa, who use a base of eleven.

Similarly in Jukun we find *bojezung* side by side with *singipon*, where *zung*, *singi*, clearly mean "one," and *bo*, *pon*, is subtractive, the words for ten being *aduei*, *idup*; Gori, an isolated language in Nigeria between Yoruba and Kukuruku (Thomas, *Specimens*, 138) with *ubo ele* (less one) for nine, and other cases further afield, also might be cited, but they are too remote from the area with which we are dealing to afford profitable material for *primā facie* evidence.* The few facts at our disposal suggest that *kob*, ten, is derived from the duodecimal base.

Speaking generally, it may be laid down that a duodecimal tribe would be likely to borrow a word for ten from its neighbours as a means of making themselves more readily understood. Even if, therefore, *kob* should not be derived from a duodecimal system, the existence of a word for ten, whether found elsewhere or not, is not decisive of the existence of a decimal system in a tribe before the duodecimal system came into use.

Between the Lendu system and that of the Bauchi tribes there is a single point of connection, and that a very uncertain one; in Yasqua *umvi* is the word for eleven; it probably means "less one." In Lendu we find *drevi* for one less than ten (*dre*), and *pevi* for one less than sixteen (*pei*); similarly in Walegga *ocivi* is used for eleven, and means one less than twelve (*oci*).

If we could be certain that *ki dzigo* originally bore the meaning of eleven, not ten, in Pangwa, it would be tempting to correlate the *dzi* or *ci* with the same word in Walegga-Lendu, where it means twelve, and thus bring into a relation, albeit of the flimsiest and most remote kind, all three areas in which abnormal systems are in use.

I propose to deal with these systems in a separate note. Meanwhile I should be glad if anyone in a position to send data of other duodecimal systems would forward their information to the Royal Anthropological Institute.

It is, of course, possible that an earlier word for ten has been discarded, but the *onus probandi* is on those who suggest this explanation. An original base of twelve may, as is shown above, be reached from six. To make the priority of the decimal system probable it should be shown that the numbers for eleven and twelve imply not only the idea of ten, but the base of ten and a word for ten; of this the lists seem to afford no evidence.

It has been shown that there are some grounds for maintaining that the reverse is true. If anyone chooses to assume that a word for twelve was formed after the word for ten existed, that the word for ten was then discarded and a word on the

* A common Bantu word for nine is *bua*, *tua*, etc.; it is not found in the semi-Bantu of Kamerun, so far as I know, except perhaps in Ndiki, *ibò*.

duodecimal basis substituted for it, the possibility must be admitted; but we are entitled to ask why the duodecimal basis was adopted in place of the decimal. It can hardly have been because, as Mr. Mathews argues, twelve has more factors than ten; arithmetic, either mental or otherwise, is not a strong point or a necessary element in native education; the base of numeration does not seem to have much bearing on the sharing out of property, in which the negro takes a real interest, unless such property is in corn, and then only if the subdivisions are determined by the base of numeration. Mr. Mathews' argument would be valid only if he could show that the tribes had a system of coinage, or weights and measures, in which the divisibility of a unit was of importance; but no such system exists.

In its bearing on the whole question of these languages the pronouncement of Sir H. H. Johnston (*Comparative Study of Bantu and Semi-Bantu Languages*, p. 731) is of interest. If I understand aright the very brief note on them in this monumental work, the author regards Ham, Koro, and Yagso, or Yasqua, as semi-Bantu languages of an earlier population absorbed in large measure by the incoming migrants of Sudanese, Nilotic, and other stocks. Substantives and numerals have, he finds, Bantu roots, but their phonology and syntax, and in large measure their vocabulary, remove them from the semi-Bantu class. In the parallel case of Kisi to which Sir Harry Johnston also alludes, we find a former semi-Bantu language changing its vocabulary and syntax (possibly Mendi has gone further on the same road) till it can no longer be included in semi-Bantu. It appears possible that the case is the same with the Bauchi tribes; but, perhaps, their numerical system justifies our giving them a peculiar position. Should, as Sir Harry Johnston surmises, the Benue area have seen the development of semi-Bantu as a sister of Bantu, or a very early proto-Bantu migration south-westward before the shaping of Bantu and its spread over South Africa, the duodecimal system here discussed may throw some light on these theories of origin.

N. W. THOMAS.

REVIEWS.

General Anthropology.

Keith.

Nationality and Race. By Arthur Keith, M.D., LL.D., F.R.S. Oxford University Press. 1919. 2s. net.

33

This little book of 39 pp. is the Robert Boyle Lecture for 1919. To say that it is written by Professor Keith is to say that it is charmingly and thoughtfully written, and well worth reading, but it is also saying that there will be plenty to discuss and argue upon.

The lecturer's plan is to take his audience for a rapid tour of the world, pointing out to them what he regards as the salient points in races and nationalities as they are met.

In the United States and Canada he points out the "machinery which maintains racial frontiers but breaks down national barriers," in the sharp line which prevents the Red Indians and Asiatics marrying with the white races, but allows various white nationalities to intermarry freely.

This process, he says, has given the world her most virile peoples, though there is a marked exception in the isolation of the French Canadian settlers, showing that national fusion has not been complete.

In Mexico, on the other hand, we see the Spaniards, representing the great Mediterranean race, mixing freely with the native Indian race, and producing a jangling series of small peoples.

The question naturally arises—why did the racial barrier between the Iberians and Mexicans break down while it held in the case of the North American Indians

and their white conquerors? To this Keith gives two answers, the first being that race caste is a more potent force in the Nordic than the Iberian stock, while the second is that the Spanish pioneers did not take their women with them.

In Australia and New Zealand the same free mixture of white nationalities is seen and the same racial division between the natives and the newcomers, but in South Africa the national barrier between Boers and British is noticed, resembling that seen in Canada dividing French and English. The author has quite definite opinions about the Jews, regarding them and the Lapps as the only two pure races in Europe.

Coming back from the world tour, British national problems are faced and the difference between the Saxon and the Celt discussed. I agree most cordially with Dr. Keith when he says that the Celts, when they landed, were early waves of the Nordic or North Sea race, but I cannot do so when he asserts that all British nationalities are of this stock, because I believe that the early Celtic waves came into contact with a large mass of Neolithic or Mediterranean people with which they fused very completely, and that the difference which everyone notices between Celtic and Saxon psychology may be best explained by the larger or smaller amount of Mediterranean blood.

Again, I cannot agree with him in his belief that no anthropologist in Europe could distinguish a group of Norfolk from a group of Connaught fishermen by their physical traits alone. My belief is that any good observer would distinguish them quite easily if the groups were fairly large and representative.

Dr. Keith ignores, though I know that he is not ignorant of, a lot of patient spade work that has been done lately in this field, showing that in places the Mediterranean element is very marked indeed; and when he says that the only invasion or colonization which was not drawn from the North Sea stock was that of a round-headed race in the second millennium before Christ, he seems to be quoting a passage from Little Arthur's *History of England*.

There is no doubt that the round-headed or Slav race has been peacefully penetrating and permeating this country throughout the centuries, though to a much less extent than it has permeated Germany, because our land is an island, and that, except in war, the Nordic race cannot compete with the Slavs.

However, this after all is a side issue to the main purpose of the book, which is gradually concentrating on Ireland and gradually getting more and more politically historical and less anthropological, though it loses none of its fascination thereby.

There can be little doubt that it is a good thing to apply Anthropology, like any other knowledge, to present-day problems, though we must remember that it is a young science which is not quite sure of itself just yet. F. G. PARSONS.

Central America: Anthropology and Archaeology.

Gann.

The Maya Indians of Southern Yucatan and Northern British Honduras.

34

Bureau of American Ethnology, Smithsonian Institution, Bulletin 64, Washington, 1918. By Thomas W. F. Gann.

Dr. Gann's monograph is in two parts. The first describes the customs, ceremonies and mode of life of the people; the second gives the results of excavation in the mounds scattered over the country. From his many years of residence in British Honduras he is well qualified for this. It is regrettable that his work should not have been published in England. The unfortunate neglect of our smaller colonies is shown in this as in many other ways. The painted vases and remarkable objects of flint and obsidian, collected by Dr. Gann and Dr. Davis in British Honduras (and just beyond the border, in Guatemala), are in the Liverpool and

Bristol Museums, but many others must have been lost or destroyed. In rebuilding Belize after the recent fire, why should not a museum be provided for local antiquities?

Northern British Honduras now contains between 5,000 and 6,000 Mayas, partly indigenous, partly immigrants. In the western part many have come in from the Petén region. In southern Yucatan, from Tulum to the Rio Hondo, there are probably now about 5,000 Santa Cruz Indians, whilst the neighbouring Icaiche have been reduced to 200 through the policy of extermination of the governments in Mexico and consequent desertion of the country. All are of the same physical type and speak the same language, the Maya of Yucatan. This extended through the Inopan country south of Petén, and met the Cholti. In height the men average 5 feet 2 inches, and the women about two inches less. Their colour varies from almost white to dark bronze. The skull is highly brachycephalic. Dr. Gann thinks the prevalence of bow legs may be due to carrying loads on the back suspended by a band round the forehead from an early age. He also quotes Landa's suggestion that it was caused by carrying children astride on the hip. But he does not appear to be aware of the custom of forcing an infant's limbs apart; this is done by a woman chosen for the purpose, who thereby becomes a sort of special godmother.

Owing to the introduction of foreign stuffs, spinning and weaving are being discontinued and also the making of pottery. This latter is done almost exclusively by the older women, who use a fine light yellow clay mixed with sand or powdered quartz. They mould the smaller utensils by hand and build up the larger by the addition of bits of clay, smoothing the outside with a little wooden spade-like implement. No polish, glaze or paint is applied.

Of diseases, the chief is malaria, causing enlargement of the spleen, which is treated by applying a number of small circular blisters containing *chichem* juice over the organ. This is remarkably efficacious in reducing the swelling. These people are good practical surgeons, as were their ancestors. The method of setting broken bones (p. 37) might be copied with advantage in civilized hospitals. Bleeding is a favourite remedy for all complaints, especially for headache and malarial fever. Many medicinal plants are known and used. Dr. Gann mentions the peculiar odour of these Indians. This is probably due to living mainly on maize and is general throughout Mexico.

Under the head of Religion is a full account of the Chu Chac ceremony* which takes place during the ripening of the maize, with the object of securing sufficient rain. An altar is erected, and after food and drink have been ceremonially prepared and prayed over, they are partaken of by the assistants. The remains, and all the objects used, are then consumed by fire.

Dr. Gann divides the ancient mounds he has examined into six classes:—

- (1) Sepulchral; including mounds originally constructed for other purposes.
These compose more than half the mounds opened.
- (2) Refuse; kitchen middens and shell heaps.
- (3) Foundation mounds; the earlier structures on these sometimes formed the bases of later ones.
- (4) Defensive; some of these were horseshoe, others crescent, shaped.
- (5) Look-out mounds, extending in chains, at intervals of six to twelve miles, along the coast and up some of the river; they are lofty, steep-sided, and usually form the nuclei of groups.

* Contributed to the Proceedings of the 19th International Congress of Americanists, Washington December 1915.

(6) Of uncertain use, with no traces of human interment, though these may have disappeared with time. The larger mounds of this class, many of them flat topped, were carefully constructed of blocks of limestone, marl dust and earth, and no doubt were bases of wooden buildings long since decayed.

This area of British Honduras and adjacent parts of Yucatan and Guatemala must have been occupied during a very considerable period or have supported a dense population, judging from the abundance of mounds, whilst potsherds, flint chips, and fragments of obsidian knivés strew the surface everywhere. Flint crops out at Baker's, near Belize, and there was evidently a workshop there. The obsidian was doubtless brought in trading, which is known to have been extensive round the coast before the Spaniards came.

The figurines, paintings, stucco mouldings, and skeletons found in the mounds show that the ancient people closely resembled the modern Maya. Headdresses of warriors and priests were very elaborate and many of the former had in front the head of some animal carved in wood, as the jaguar, eagle, peccary, snake or alligator. At Soibal, Holmul, Naranjo, and Benque Viejo, along the frontier of British Honduras and Guatemala, examples of sculptured stelæ and altars have been found, equal in workmanship to any others of Central America. So are the moulded stucco figures at Pueblo Nuevo and the personages painted on stucco at Santa Rita, near Corozal. The very finest decorated pottery was also used here. Great numbers of spindle whorls in mounds and village sites are evidence of former industry.

The well-known Leyden Plate with the date of cycle 8 (8.14.3.1.12) was found in southern British Honduras, twenty miles from the border of Guatemala. Other dates recovered from inscriptions are: at Naranjo 9.10.10.0.0 and 9.19.10.0.0 (a period of 180 years), and at Tulum 9.6.10.0.0.

Among the many mounds carefully described by Dr. Gann, some are especially worth notice. At Santa Rita seven contained human and animal effigies, some crudely made in sun-dried clay, others well moulded and painted in divers colours. In Mound 1 were forty-nine figurines, consisting of four warriors with spear and shield,* three seated human figures, three others standing, four lizards, four alligators, four snakes, four birds, four dragon-like creatures, four tigers, and fourteen quashes or picotes.† These were altogether in a circular urn 18 inches in diameter, which was contained in a limestone cist nearly 3 feet in diameter and 5 feet deep. Mound 2 had great quantities of fragments of pottery censers, decorated with human figures. Nearly 150 pounds weight of these were taken from it.

Mound 10 (p. 86) is a conical mound close to the head waters of the Rio Hondo, buried in thick forest. It was 80 feet high, 350 feet in circumference, and completely covered with high bush. After clearing the underbrush, an opening 3 feet square was found about 17 feet from the summit on the north side, with walls faced with cut stones. A low passage led to a stone-faced chamber 8 feet high, 6 feet broad, and 10 feet long. Excavating the floor of well-beaten earth and lime, 8 inches thick, there was below it a soft brown sand 2 feet deep, in which were several small deposits of lime, each containing obsidian knives and some cores. After 18 inches more of brown sand came a layer of lime 18 inches thick, in which were sixty obsidian cruciform objects, finely chipped, 3 to 4 inches long. Another layer of brown sand, 3 feet thick, followed the lime, and then another layer of lime mixed with sand, 4 feet thick, with forty human skulls neatly placed in rows, near the bottom. These crumbled to pieces when moved, but,

* Three of these are in the British Museum.

† A small arboreal animal which abounds in the district.

to judge from the teeth and lower jaws, they appeared to be of individuals in the prime of life. Immediately beneath the skulls were seven spearheads and five eccentric objects of chert, the spearheads varying in length from 37 cm. to 29 cm. The very fine halberd-shaped implement and other objects are at the Liverpool Museum. About 3 feet* below these, embedded in sand, were twenty cruciform obsidian arrowheads, twelve obsidian knives, and two chert crescents. At a depth of 30 feet the walls of the chamber met the solid foundation of masonry. Attacking the summit of the mound above the chamber, the first 2 feet were of fine brown soil full of roots of trees with not one flint chip or potsherd. Beneath this, to the roof of the chamber, were blocks of limestone, loose mortar and powdered limestone. At 8 feet down were a flint paint grinder, two clay saucers, some stone beads, and 300 triangular obsidian objects, varying from 1½ to 2 cm. in length, thick at the upper angle and with a sharp cutting edge at the other end. They may have been teeth for a wooden sword. The descriptions of the mounds deserve careful reading; 9, 15, 16, 17, and 21 are examples of the varieties both of style and contents. Mound 35 (p. 133) was a typical kitchen midden. The labour of excavation must have been very great and sometimes disappointing; the author's perseverance deserves high commendation. Dr. Gann illustrates the many strangely-shaped obsidian and chert objects from the mounds. Some are obviously weapons, such as are carried or worn on the arms of some of the warriors carved on the walls of Chamber E at Chichen Itza in northern Yucatan. For a description of the three kinds of burial commonly employed, see p. 127.

The Plates 26, 27, 28 of the pot from Yalloch (at the Bristol Museum), painted with mythological figures, are pleasing in colour and effect, but sadly lacking in the precision of detail that is necessary for satisfactory study. A. C. B.

* One may suggest that it would be better to keep entirely to metres for measurements.

ANTHROPOLOGICAL NOTE.

ACCESSIONS TO THE LIBRARY OF THE ROYAL ANTHROPOLOGICAL INSTITUTE.

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(Donor indicated in parentheses.)

Inscriptions of the Madras Presidency, Vol. I-III. By V. Rangacharya, M.A. 9¾ × 6½. 710 pp. + 732 + 296. Government Press, Madras. 19s. 6d. (The Secretary of State for India.)

La Religión del Imperio de los Incas. By J. Jijon y Caamano. Vol. I.: Los Fundamentos del Culto, Huacas Canopas, Apachitas, Urcos, Huancas Machais. 448 pp. Topografía y Encuadernación Salesianas, Quito. (The Author.)

Through Deserts and Oases of Central Asia. By Miss Ella Sykes and Brigadier-General Sykes, K.C.I.E., C.B., C.M.G. 9 × 6. 332 pp., 2 Maps and many Illustrations. Macmillan & Co. 21s. net. (The Publishers.)

Ojibwa Texts. Collected by W. Jones, American Ethnological Society. Vol. VII., Parts 1 & 2. 9¾ × 6½. 501 pp. + 777. (The Arbor Press, New York (Dr. W. L. Hildburgh).)

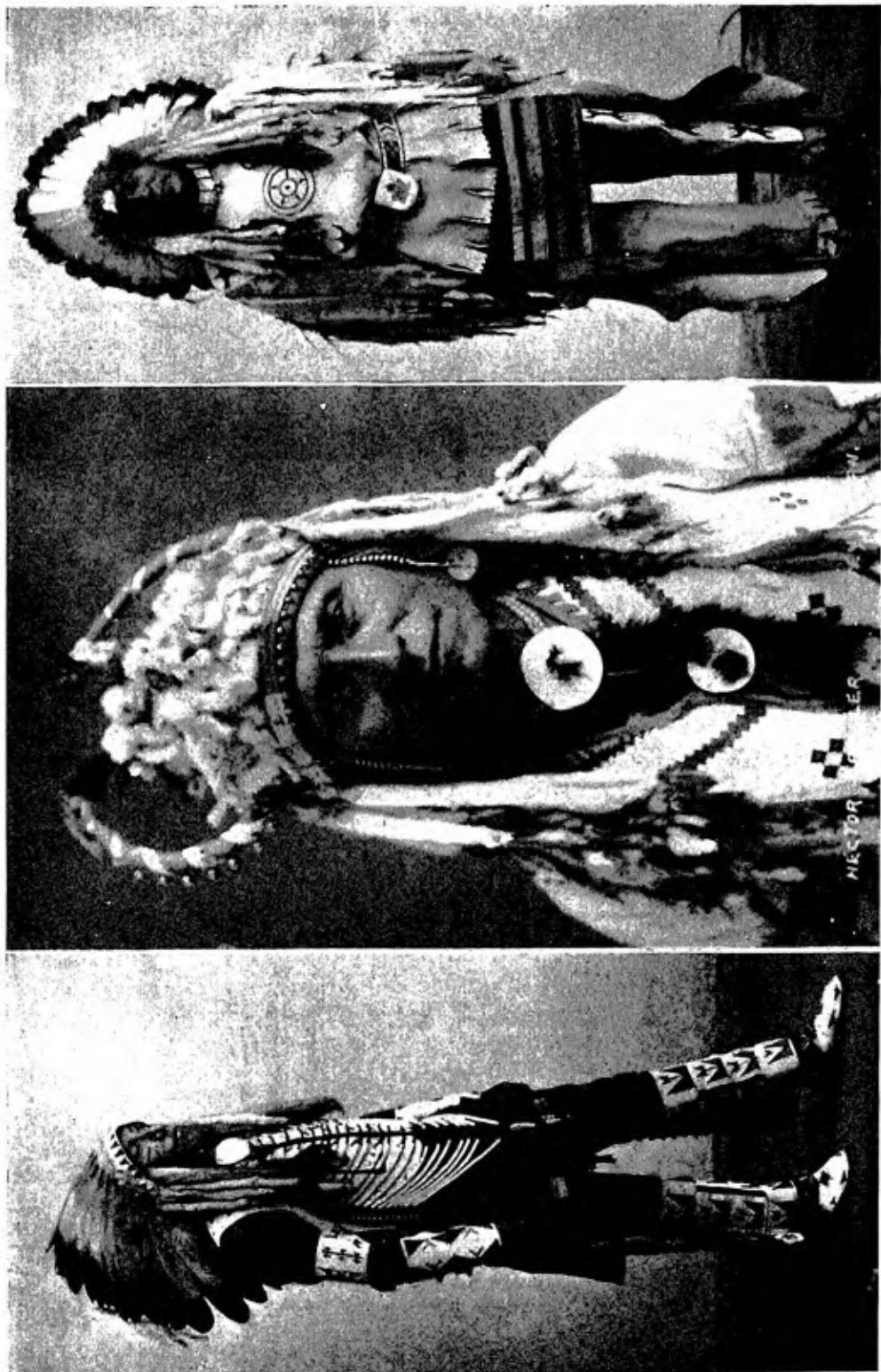
Geological and Archaeological Notes on Orangia. By J. P. Johnson. 9¾ × 7½. 99 pp. Illustrated. (Longmans, Green & Co. (J. Johnson, Esq.).)

The Prehistoric Period in South Africa. By J. P. Johnson. Second Edition, revised and enlarged. 9¾ × 7½. 113 pp. Illustrations and Map. (Longmans, Green & Co. (J. Johnson, Esq.).)

The Stone Implements of South Africa. By J. P. Johnson. Second Edition, revised and enlarged. 9¾ × 7½. 85 pp. Illustrated. (Longmans, Green & Co. (J. Johnson, Esq.).)

[Photo, Harmon.]

THREE STONEYS : MORLEY RESERVATION, ALBERTA.



ORIGINAL ARTICLES.

With Plate E.

Canada: Stoney Indians.

Breton.

The Stoney Indians. By A. C. Breton.

36

The Stoney Indians, three of whom are represented in Plate E, are a branch of the Sioux and speak the same language. They dwell on a reservation round Morley, a station on the Canadian Pacific Railway, about halfway between Calgary and Banff, in the foot-hills east of the Rockies, near the course of the Bow river. Little information has been printed about them, and the name is merely mentioned in the Handbook of Canadian Indians, under that of Assiniboine, which also means cooking with heated stones.

They have three separate villages, that of Chiniqay, Bear's Paws, and another, each with a chief and an assembly hall. The Agency is apart, with the officials' houses, a school, store-buildings, etc. Here the people come for help of all kinds, and are well cared-for. Chiniqay village is about a mile south-east of the station, on a level plain sheltered by hills, and has several well-built log houses. When visited on September 30, 1919, the Indians were preparing to start on their annual hunting trip, which lasts nearly three months. Their treaty money, also annual, had been paid a few days previously, so they were in full enjoyment of spending, with new blankets, shell necklaces, clothes, new cooking and eating utensils. They are said to be most improvident, getting rid of the money at once. But the treaty was to be in effect "as long as the river flows," and is on a generous scale, so that they can buy really good things, and Indians always choose the best, though limited by the supplies at the shop near the station.

The interior of the log-house visited was clean and tidy. Two women were seated on the floor, idle. A rude bedstead was the only furniture, but there were good enamelled pans and dishes. An old crone, much bent and with deeply-lined visage, was said to be only about 72, but looked far older. The women age early, but are pretty when young, the little girls graceful, and the babies fascinating.

The death-rate of infants under two or three weeks old is high, as the mothers get little consideration from their husbands, and are expected to go out and fetch firewood. For the same reason more women than men died during the heavy toll of the epidemic in October, 1918. The men stayed quietly in bed and took care of themselves. All are vaccinated for small-pox now at the Agency, and do not object.

According to Mr. Stocken, of the Agency, who knows the different tribes well, the Stoney are reasonably honest, and can resist a temptation to take articles or money, which the Blackfeet, Sarcee, Cree, and Piegan would abstract and deny that they had seen, thinking it clever to get the better of another man. Stoney honesty may be due to the training they have had since 1840 from two Methodist ministers, first the Rev. R. Rundle, and then the Rev. J. McDougal, who lived among them until his death recently and influenced them greatly for good. Easily influenced they are, and cowboys on neighbouring ranches, with fine clothes and wild ways, lead the young Indians to follow them, so that they despise the steady-going type, enjoy gambling, and ride recklessly the very fine horses they now possess.

The chief festivals are: that of the New Year, the Seed-time Dance, and the Sun-Dance, besides horseracing and sports at the payment of the treaty-money. The people are clever in organising their shows. When the Duke of Connaught was at Banff in 1916, the Stoney came up in a body to their camping ground at the foot of Cascade Mountain, and had a great procession of riders arrayed in all their finery and feather bonnets. The Duke was made a Chief, and so was the Prince of Wales in September, 1919. For the latter, the women had spent six

weeks in making him a suit of white deerskin. He was given the name of Morning Star. The Stoney always name a person for some characteristic. On these occasions the many skin tepees make an effective picture; at the Prince's visit they were painted with rainbows.

At present there are about 600 Stoney. The men are occupied in cutting timber, and raising cattle and horses. One man sold two steers for 350 dollars, and the money was all gone in two days. They despise agriculture, but have good gardens at one village. The women do house and laundry work at the Agency and elsewhere when so inclined. Among the few bits of information gleaned in a brief visit was the fact that they believe the Northern Lights to be the spirits of the dead, and that when red in colour, "battle is coming." Before the late war there was a display of red lights, foretelling it to them.

The Reports of the Canadian Geological Survey, 1886 and 1887, contain a few notes on the Stoney. In Vol. I Dr. G. Dawson wrote:—

The Stoney attach definite names to very few features in this region, whether mountains or rivers. They are known to be recent immigrants and to have occupied the district only about forty years. They have since incorporated with themselves the families of Mountain Crees, who formerly hunted here. The Cree are comparatively recent, too, and may have expelled some hostile tribe such as the Kootanie . . . The present tribe of Rocky Mountain Stoney (or Assiniboine) are known to be related to the Athabasca Assiniboine. These, according to De Smet,* separated from the main body about 1790.

In Vol. II of the Report† is a list of names, Cree and Stoney (Stoney place-names are usually translations from Cree), obtained from William Kitchipwack, a Stoney of Morley, who worked for Mr. Tyrrell in 1885.

Pronunciation of vowels:—

a - -	fat.	o - -	go.
ā - -	father.	u - -	nut.
e - -	met.	ai - -	aisle.
ē - -	they.	oi - -	join.
i - -	pin.	oo - -	pool.
ī - -	marine.	ow - -	now.

J. Low‡ mentions in Historical References to Hudson Bay, Kelsey's Journal of 1691, that Kelsey travelled from a point on Nelson River above Split Lake to the open country north of the Saskatchewan River. "He set out from Deering's Point (probably "Split Lake), where the Indians always assemble when they go down to trade, to "seek the Stone Indians, and, after overtaking them, travelled with them and the "Nayhaythaway Indians to the country of the Naywatamee-Poets, and was 59 days "on the trip, including rest-days."

A good general account of the Stoney is that of W. Willcox,§ who came to know them well during many seasons of mountaineering. He says that they have few traditions. Though so few, they have exercised strong influence over the other tribes. They believe in influence. For instance, a lock of hair in possession of an enemy is a cause of great anxiety, giving power of life and death over the victim. This may be a heritage from the Sioux, who always consciously used will power, described by Miss Alice Fletcher as "the power by which man directed his own "acts, or willed a course by which to bring about certain results." Also, "the full "consequences of a certain line of conduct are willed to fall upon the person who,

* Rev. J. P. de Smet, *Western Missions and Missionaries*, 1859.

† Appendix IV to Tyrrell Report.

‡ Geological Survey Report, Vol. III, 1887-8.

§ *The Rockies of Canada*, chap. 15, 1900.

"of his own accord, has determined on that line of conduct," and in other ways the will power is used to harm or benefit.

Although in the course of centuries there must have been commingling with the other peoples they encountered, the Stoney have a distinctive appearance, resembling the Seminoles and some Mexican Indians in features, in disposition and in the style of their ornaments. By following up the Mississippi and Ohio (as the Seminole and Natchez were in the habit of doing) they could easily reach the northern country. Chateaubriand, in 1791, describes some Natchez who went as far as Niagara, and some Iroquois, in 1820, went from Caughnawaga (opposite Montreal) to the mouth of the Columbia and north to the Peace River. Many writers fail to grasp the fact that the American continents have been walked over from end to end during untold ages. No ethnologist appears to have studied the Stoney yet in a comprehending spirit.

A. C. BRETON.

Wales.

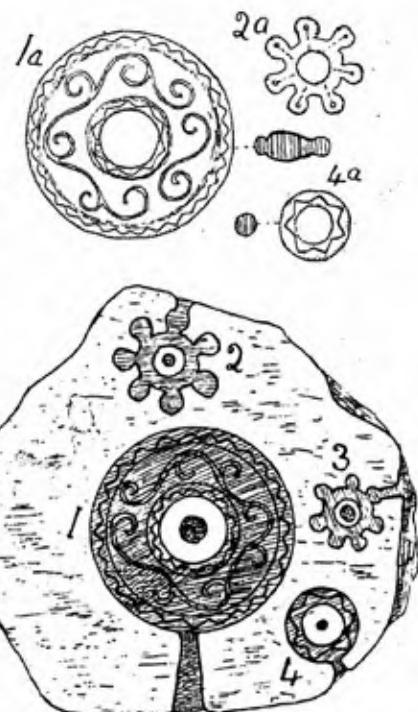
Cunnington.

Note on a Stone Mould from South Wales. By Mrs. M. E. **37**
Cunnington.

The stone mould that forms the subject of this note was found on the Worms' Head, Glamorganshire. This fine headland, the extreme end of the Gower Peninsula, stands boldly out into the Bristol Channel, stretching its sinuous length for nearly a mile beyond the mainland, from which it is cut off by the sea at every tide.

Near the end of the headland at some time before it had been reduced to its present narrow dimensions by erosion of wind and waves, there seems to have been a habitation or settlement of some kind; here along the edge of the low cliff as the scanty soil and turf crumbles away may be found numerous shells of edible sea fish, fragments of bones, an occasional sherd of coarse pottery, and still more rarely a fragment of bronze or iron. The mould in question was found on this site with one of its corners sticking out of the edge of the cliff, the two halves together resting face to face on one another.

The mould is made of two pieces of a fine-grained red sandstone of irregular shape and about an inch thick; on the corresponding sides or faces of the two stones are matrices for casting four separate objects; the two pieces of the mould are roughly of the same size and shape, and the runnels of the matrices 1, 3, 4 are cut to correspond on both stones so nearly that when the stones are bound or clamped together it is just possible to take a bad cast of these three matrices without readjustment, but to get a good central cast it is necessary to alter slightly the position of the stones for each separate matrix. The position of matrix 2 in relation to the three other matrices is not the same on both stones, so that they have to be readjusted before this can be cast, and when so arranged it is not possible to cast either of the other three. The sunken centre of each matrix would



serve for the insertion of a wooden or bone peg to help to keep the two stones in place during the operation of casting.

On the reverse side of one of the stones two small circles have been cut ; they look like trials made to test the quality of the stone or of the tools before venturing work on the right side or face which has been rubbed down quite smooth while the remainder of the stone has been left rough.

The large ring (Fig. 1a) cast from matrix 1 is ornamented with a raised pattern of S-like scrolls enclosed by two narrow rows of irregular chevrons or waved lines ; the scroll is varied slightly on the two sides. Fig. 2a shows a cast from the



matrix 2 ; and is a ring with seven star-like rays ; this is larger than the ring cast from matrix 3 but otherwise practically identical with it. Fig. 4a, a cast from matrix 4, is a small ring with raised pattern of waved lines or loops with seven points.

It would seem that these rings could only have been intended for some ornamental purpose, and that, as both sides are equally rounded and ornamented, apparently both sides were meant to be seen. It is perhaps permissible to suggest that they have been designed with some reference to sun worship, the disk, the rayed star, and the "S" scroll being all well-known solar symbols derived from the wheel.

As to the date of the moulds, or of the site on which they were found, there is little to be said, but from the relics found and known to the writer the site appears to be pre-historic ; the few sherds of pottery are of rude description and handmade ; other objects found include a large saddle quern and rubber, a hammer made from the butt end of a large antler of the red deer, and a piece of another stone mould for casting some flat circular object similar to a mirror of the well-known Early Iron Age type, about seven inches in diameter.

This part of the coast must always have been remote and difficult of access by land, but easily reached by sea both from other parts of Britain and from the continent.

The mould was picked up by the late Captain E. C. Cunnington, R.A.M.C. It is hoped that the mould, together with other relics from the site found by him, will find a resting place in the Museum of the Institute at Swansea.

M. E. CUNNINGTON.

Malay Beliefs.

Evans.

Kēmpunan. By Ivor H. N. Evans.

38

In a recent paper of mine in *The Journal of the Royal Anthropological Institute* (Vol. XLVIII, p. 193), I gave an account of certain beliefs of the Sakai with regard to persons going into the jungle while some craving of theirs (for food, tobacco, &c.) remains unsatisfied. Ill-luck is thought to pursue those who thus expose themselves to the dangers of the forest, and they will be fortunate if they are not bitten by snakes or centipedes, or stung by scorpions.

A Malay man who has met with such a misfortune, and ascribed it to the above-mentioned cause—for the Malays also have these beliefs—will say that he has *kēna kēmpunan*.

As far as I have been able to find out, the ill-luck occurs owing to loss of soul-substance due to the unsatisfied craving.* One Malay—the only man from whom I have been able to get a “reasonable” explanation of these beliefs—told me that the misfortune happened because “the soul was lacking strength,” due to the craving, and, of course, any one whose soul-substance is not in an active and healthy condition easily falls a victim to the attacks of evil spirits.

The Editor has added a footnote to my paper in the *Journal*, explanatory of the word *kēmpunan*. I remarked that the meaning of the word, as given in Wilkinson’s *Malay-English Dictionary*, was “a dilemma,” but that “this does not give the whole meaning which the word conveys to the majority of Malays.” If a country Malay is asked what *kēmpunan* means, he will generally reply, “To get ‘bitten by a snake or centipede through going out into the jungle with a craving ‘for food, or tobacco, or *sireh* unsatisfied.”

Now the Editor would derive *kēmpunan* from “*Kā-āmpunan*, signifying to ‘ask pardon’ (for leaving the table), as one has to do if one leaves in the ‘middle of a meal.’” He says, therefore, that *Kā-āmpunan* would easily come to mean “to go craving.”

Not being absolutely satisfied with this explanation, and knowing that certain Jakun tribesmen talk not of *kēmpunan*, but simply of *punan*,† while the Sea Dyaks also use the expression *puni* in exactly the same sense as *kēmpunan*,‡ it occurred to me that, the word being, seemingly, fairly widely used by Malays and Indonesians, I might possibly come across something of interest in connection with it in that storehouse of good things for those interested in the Malayo-Polynesian area, Tregear’s *Maori Comparative Dictionary*. There I found under the heading “*Punipuni*” a large amount of most interesting information of which the following paragraph contains the most important items:—

“*Punipuni* (Maori). Samoan—*puni*, a place enclosed to catch fish; *puni-puni*, to shut, to close. Tahitian—*puni*, to be enclosed; *pupuni*, to hide oneself§; *atipuni*, to be besieged.¶ Hawaiian—*puni*, to surround, as water does ‘an island; to enclose; to be hemmed in, as one person by multitudes, to encircle; *punihei*, to ensnare. Tongan—*buni*, closed, shut; *tapbuni*,|| to close up, to

* *Vide also Encyclopædia of Religion and Ethics*, “Indonesians,” 4.

† The Behrang-Valley Senoi of the Perak-Selangor boundary, who are Sakai with a Selangor-Sakai-Jakun strain in them, speak of a *Dana Punan*, or *Punan*-spirit, who is responsible for ill-luck met with by those who have given it an opportunity of causing them trouble.

‡ *Seventeen Years Among the Sea Dyaks*, p. 320. Very similar customs with regard to touching unwanted food are found among some Sakai-Jakun tribes.

§ The connection between “to hide oneself,” i.e. to shut oneself up, and to be besieged, enclosed or surrounded, i.e. to be shut up, is obvious.

|| The identity of the words *tapbuni*, *tabu*, and the Malay “*buni*,” “concealment,” “hiding,” is interesting.

shut; *tabu*,^{*} prohibition. *Mangain—puni*, to hide. *Paumotan—punipuni*, refuge, to take shelter. *Malay—cf., buni*, to hide."

I think, then, that in view of the obviously intimate connection between *kempunan* of the Malays, *punan* of the Jakun, *puni* of the Dyaks and such Polynesian words as *puni*, *buni*, &c., the Editor of the *Journal's* derivation of *kempunan* will, unless very remotely, scarcely hold good. It will be noted that the meanings of the Polynesian forms of the word, such as "to be shut in," "to be enclosed," "to be hemmed in," are very similar to those given by Wilkinson for *kempunan*, which, in *extenso*, are as follows, "a dilemma; a difficulty caused by "every course open to one having its disastrous features. '*Lepas deri kumpunan*' (*sic*): "to escape from an awkward fix."

IVOR H. N. EVANS.

Maori.

Ling Roth.

Some unrecorded Maori Decorative Work. By H. Ling Roth.

39

Small fancy-work Maori wallets (Fig. 1) are not uncommonly met with in museums, but they are usually thought to be quite modern in origin. It is often

supposed that they have been especially made for tourists and they are considered of little value except as mementoes of an art introduced by Europeans to the Maories. The wallets, like the well-known Maori garments, are made of phormium warp held together by twining, but their characteristic decoration lies in the crossing of part of the warp between the twined rows (Figs. 2 and 3), which makes for gracefulness and at first sight superficially reminds one of macramé work. This form of decoration I have not found on any other Maori work, and it has always appeared to me to be confined to the wallets until quite recently Mr. A. W. F. Fuller showed me a Maori jupe (Fig. 4), which has similar decoration as well as a circular one, which is not commonly found on the garments. This jupe appears to be a rarity, and as I have not come across any mention of its peculiar decoration in any literature dealing with Maori arts and crafts a description may not be undesirable.

The wallets (Fig. 1), of which there are three in Bankfield Museum, can be briefly described as follows:—

Fig. 1.—Size 32 × 24 cm., medium quality, twining counterpaired, crossings curved, warp partly coloured magenta,



FIG. 1. MAORI WALLET. MALLINSON, 1906:
BANKFIELD MUSEUM.

* The identity of the words *tabbuni*, *tabu*, and the Malay "buni," "concealment," "hiding," is interesting.

fringe on two sides and along bottom, and likewise parti-coloured magenta ; obtained in 1892 (in the Kennedy Collection).

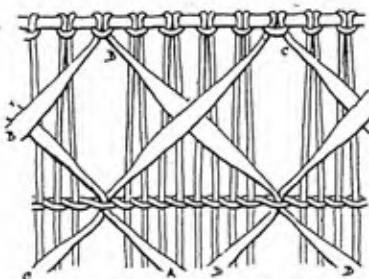
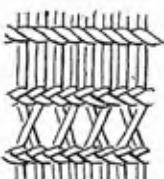


FIG. 2. HIRST WALLET - STRAIGHT CROSSINGS - SINGLE-PAIRED TWINING



CROSS WORK ON
A WALSİ BASKET
TORRES STRAITS.
CAMBR. MUS. A&E.
(CF. TORRES STR.
REP. 1912, PP. 75, 78)



FRINGE ATTACH-
MENT.
FIG. 3. MALLINSON
WALLET - CURVED
CROSSINGS -
COUNTERPAIRED
TWINING

Fig. 2.—Size 22 x 19 cm., coarse quality, twining single paired, the fringe partly coloured black and orange, crossings almost straight, fringe on the sides only, the thrums (warp ends) forming a fringe at the bottom. Brought home by Miss G. Hirst in 1902.

Fig. 3.—Size 28 x 28 cm., good quality, twining counterpaired, all natural buff colour, crossings curved, fringed on two sides and bottom, the thrums at bottom increasing the thickness of the fringe. Given by Miss S. A. Mallinson ; brought home in 1906.

Then, in the Kennedy Collection, there is an unfinished piece, 48 cm. long by 17.5 cm. deep, consisting of original buff-coloured warp, held together by four rows

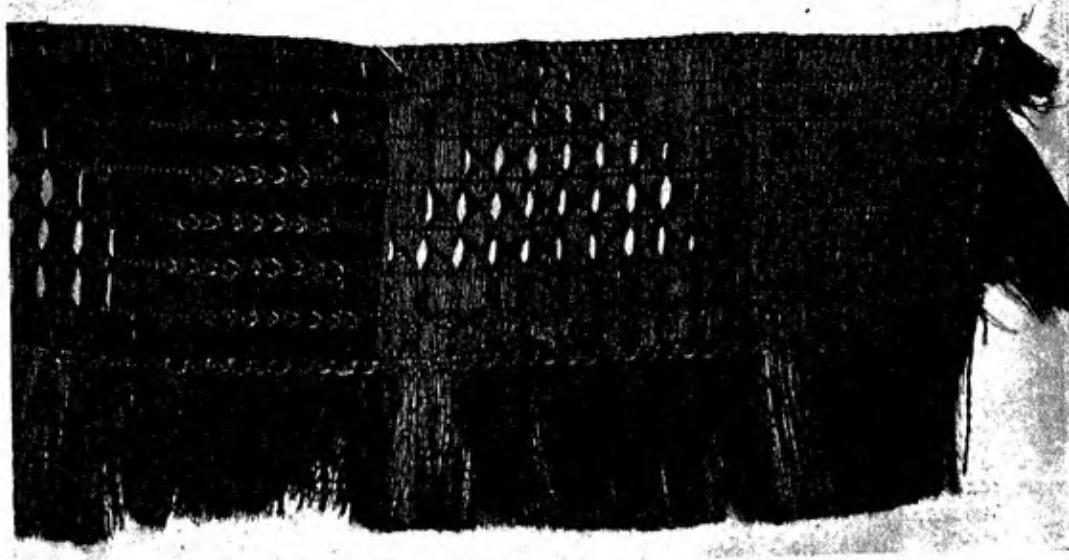


FIG. 4.—FANCY JUPE IN THE A. W. F. FULLER COLLECTION.

of single paired twining and with only three rows of curved crossings, the rest of the warp hanging down as a fringe. It was obtained in 1892, and forms the connecting link between the wallets and Fuller's piece.

It will be observed that all four specimens are apparently of fairly recent date.

The fancy jupe or kilt (Fig. 4) in Mr. Fuller's Collection was originally about 203 cm. long, but at present, owing to the destruction of part of the side fringes, is only 198 cm. long; it is 19·5 cm. wide. It is evidently an old piece.

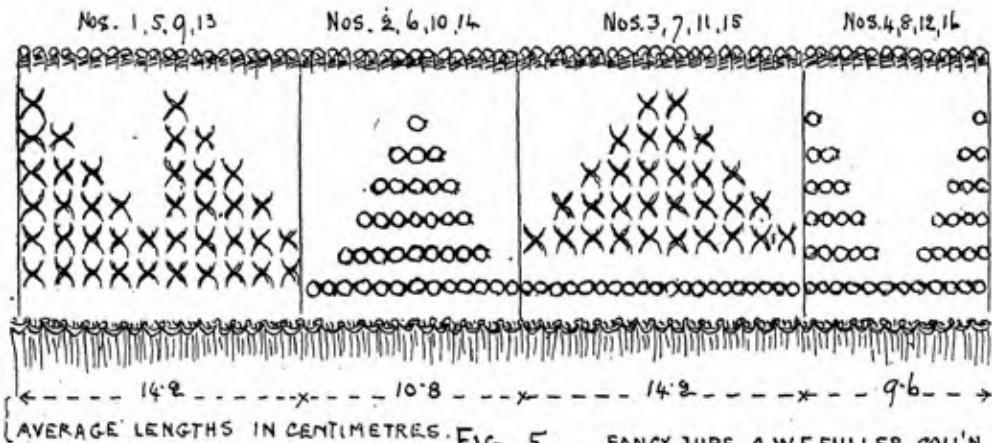


FIG. 5. FANCY JUPE A.W.F. FULLER COLL'N.

Apart from the two ends of black warp it is divided up into 16 panels (Figs. 5 and 6), the patterns of which repeat themselves after every fourth panel. The twined rows are single paired top and bottom, but the six intermediate ones are counterpaired.

The 1st, 5th, 9th and 13th panels consist of alternate groups of two black and four yellow coloured warps. At intervals the black warp on either side of the yellow ones on emerging from the top twined row are made to cross each other loosely as in the wallets.

FRONT VIEW
BACK VIEW
TWIST ATTACHED IN THE FORM OF RINGS
TWISTED AND NON-TWISTED WARPS

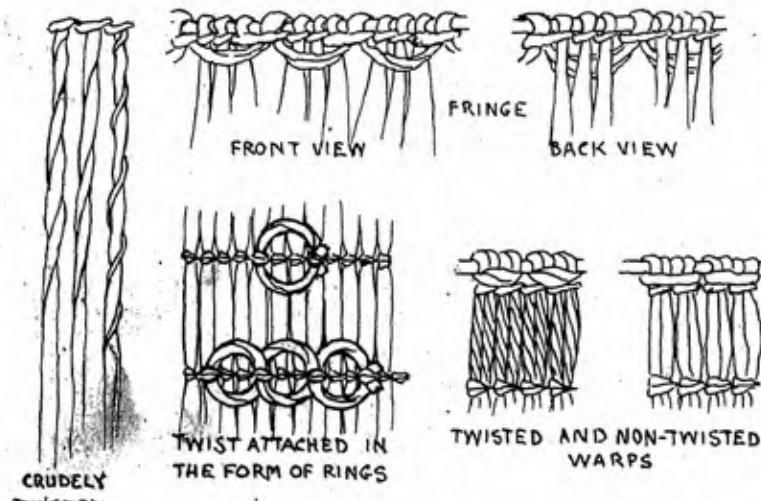


FIG. 6. FANCY JUPE A.W.F. FULLER COLL'N.

The 2nd, 6th, 10th and 12th panels are of black warp, and are decorated with a series of rings of phormium arranged in the form of a triangle beginning with one ring in the middle of the top

counterpaired row and increasing by twos on each successive row until the bottom twined row is reached, where there are eleven rings. These rings are worked in as the twining proceeds, and appear to have been blue once, but the colour is very much faded and only just discernible.

The 3rd, 7th, 11th and 15th panels have an entirely yellow warp with crossings similar to those on panels 1, 5, 9 and 13, but arranged in a triangle. The bottom counterpaired row is decorated with a series of rings like that already described.

Panels 4, 8, 12 and 16 appear to have had blue coloured warp once and its decorated rings arranged as two right-angled triangles with the right angles facing each other. The rings here again appear to have been blue originally.

The fringe, about 7 cm. deep, is all in one piece and has been added afterwards. It is black, yellow and faded blue (?).

There are two peculiarities which should be noted:—(1) part of the warp is formed of loose bunches of fibres as in the mantles, etc., and part somewhat twisted; (2) some of the tags are twisted in a peculiar manner which, from a remark by Elsdon Best, *Trans. N.Z. Inst.*, Vol. XXXI, p. 648, may be intentional and not crude work as appears at first sight.

The black crossings on the yellow warp background are somewhat pronounced, but with the yellow crossings on the yellow warp background we get the advantage of light and shade given by a raised surface with the same colour. We should have the same results with the blue rings on the blue warp background. The blue rings on the black warp background must have made a pleasant contrast. When new it must have been a somewhat striking, if not beautiful piece of work.

The crossing of the warps for decorative purposes has its counterpart in European basketry, but the only evidence I have found of its existence elsewhere in the Pacific is on some Walsi baskets from Torres Straits (Fig. 2). The arrangement of the ring decoration I have not met with elsewhere outside this jupe.

H. LING ROTH.

REVIEWS.

Animism.

Gilmore.

Animism, or Thought Currents of Primitive Peoples. By G. W. Gilmore. Pp. xiv + 250. Boston: Marshall Jones Company, 1919, 8vo. Price \$1.75 net.

40

The author of this work was formerly a professor of comparative religion; he has also edited an encyclopaedia of religion: we have therefore the right to expect from him a clear marshalling of facts, rigorous definition of terms and impeccable accuracy.

It is a somewhat singular circumstance that such an author should not recognise the existence of non-animistic elements in primitive thought, and still more remarkable that he should not mention in his bibliography, which contain some hundred and fifty titles, a single line by Mr. Marrett. If this omission is intentional, the author is less than candid when on p. 6 he remarks that "the performance of "worshipful acts upon or the attribution of sentience to a stone, bring into notice "a cultural condition, a method of thinking, which is of common consent called "animistic." Animism he seems to define as "the doctrine of spirits"; and though the passage cited is qualified and mention is made of a preanimistic stage of "naturism" or "dynamism," of which Mr. Clodd and Prof. Leuba are quoted as the protagonists, the impression left on the mind of the general reader, for whom the work is intended, would probably be that stone worship is, irrespective of the attribution of soul to the stone, a mark of the "animistic stage" of culture—a somewhat unfortunate phrase at best, as it would not be easy to name any people whose creed is unmixed animism, and a large part of what are commonly classed as magical rites do not imply any belief in spirits.

If it were only in looseness of phraseology that Mr. Gilmore erred, the result would still be unfortunate; but when he cites the primitive belief in the power of transforming any one form into any other form as a feature of animism, it seems that lack of clear thinking really lies at the root of the matter; if a river is a bull with a human face, we can speak of duality of form or of the power of transformation, or of a kind of "personification" or rather zoification; but to imply that such a belief involves belief in a soul is to go beyond the evidence. The fact is, the author is a thoroughgoing believer in the view that animism lies at the base of everything and reads animism into data where no trace of animism really exists. Thus, to take my own Ibo facts (*Report, Part II.*), which he frequently quotes, and sometimes misquotes, *Ana* (the earth) is an Ibo *alose* (*ib.*, p. 29), but I have never heard any suggestion that there is a spirit connected with it, nor do I know any Ibo word by which such a spirit could be designated (*cf.* page 32); it is true that certain other *alose*, among them the *ngu* and *ojuku* trees (*ib.*, p. 31), are believed to be incarnated in human beings; but even in this case it is incorrect to speak of the "soul" of these trees, as does Mr. Gilmore on p. 69. The whole reincarnation belief seems to have been imported, and is possibly due to Egyptian influence, witness the name *kla* for the double on the Gold Coast; if that is so it can hardly be argued that the Ibo *alose* are conceived as spiritual beings unless data are brought forward which are not part of the reincarnation complex. To argue otherwise is to imply that the native beliefs are logical and uncontaminated.

In a second case (p. 58) the same tendency to misread his texts is even more obvious; the author cites an Ibo belief as to the relation between a tree and a man, and states that harm to either means injury to the other. In point of fact I expressly excluded this interpretation, as I was not satisfied that harm to the man meant harm to the trees.

At certain points the author is, perhaps, rather disposed to jump to conclusions; in speaking of trepanning, for example, he regards it as satisfactory evidence of palæolithic animism. If, however, there is one fact firmly established in comparative religion it is that rites persist long after their original meaning has been lost, as in "survivals" of our own day: alternatively, they may remain as elements in a recognised cult, but receive new explanations and take over new elements; the case of baptism may be cited as a conspicuous instance.

As an example of the author's mental leaps may be cited the arguments on pp. 19–22 intended to prove that primæval man had a large degree of rationality; this conclusion is based on (1) an observation made by the author himself on a street cur that mistook a cast-iron dog for a real one and made off, much abashed, as Mr. Gilmore supposes, when the error was observed, and provoked roars of laughter; and (2) on the experiment tried by Romanes, also on a dog, which was alarmed by the motion of a bone pulled with a string. The interpretation put on these two cases is perhaps a little strained, for one may reasonably doubt whether a street cur would feel chagrin because some person or persons unknown laughed at it; and more observations like those of Prof. Romanes are needed before we can admit that the dog in such cases recognises that he is face to face with the abnormal and feels awe or dread.

On the whole, though the book is a readable one, the indiscriminate choice of examples from one ethnographical field after another, the loose argumentation, and the lack of clear definitions does not make it a handbook for the student. A re-survey of animism would be a most useful piece of work, but the classification must proceed on two lines, firstly psychological, according to the kind of data, secondly topographical or ethnographical, according to their racial origin. Dreams, for example, are apparently far more important in one area than another; the

initiation fast and dream are not world wide, and where they are found the rôle of the dream in general is likely to be more important. Whether there are actual racial differences in respect of dreams we do not know; but so far as my own experiences goes the dream is a very unimportant element, and the negro, so far from giving an animistic explanation, often says that he does not know what a dream is.

N. W. T.

America, North.**Lowie.**

Plain Indian Age-Societies: Historical and Comparative Summary. By Robert H. Lowie (*Anthropological Papers of the American Museum of Natural History*, Vol. XI, Part XIII, New York, 1916). Pp. 150.

41

Mr. Lowie here reviews those interesting societies of the North American Indians, interesting in themselves, because they throw so much light on Indian life and culture, and fully confirm that reputation for stoic bravery which has made them the favourites of our boyhood. Moreover, the great amount of evidence collected (and Mr. Lowie stands in the forefront of the collectors) gives them a great scientific interest; for the material is so abundant that it would be our own fault if we got nothing out of it.

Mr. Lowie takes each group of Plains Indians, and examines the characteristics of their societies, what features they have, and what they lack; thence he deduces the part which they have played in the evolution of this remarkable institution. Finally he summarises the whole and concludes that societies with age grades originated among the village group of Plains Indians, and that they are derived from ungraded societies (p. 954). Mr. Lowie passes on to the Masai and the Melanesians, and concludes, rather to our disappointment, that "the essential diversity of these three groups is not open to doubt." I must beg leave to differ, for it is not until we have tried to connect them and thus been led to discover utterly different origins, that this certainty is attained. The attempt is not seriously made. Present differences, however great, do not disprove a common origin: the English and Hindustani languages differ enormously, yet their common origin is not open to doubt. There are quite enough resemblances between the warlike societies of Africa, Oceania, and North America, to make a common origin an attractive hypothesis well worth testing. There is no harm in trying, but much in not trying it. The first step is to trace each of these groups back to earlier forms; if they draw nearer together as we follow their course backward, we go on elate with hope; but if they go further and further apart we give up the quest.

Reading Mr. Lowie's excellent monograph on "The Societies of the Crow, Hidatsa, and Mandan Indians" (same series, Vol. XI, Pt. III), I was impressed how pregnant his material was with all kinds of questions. Thus we find that each Hidatsa society is antagonistic to the one next above it, but allied with the next but one; this friendly society appears (I speak under correction) to be called grandfathers by the junior society among some tribes, elder brothers among others (*Plains Indians*, p. 951). Now I should like to know what happens if we connect it with that form of kinship based on alternating generations as found in Fiji: according to that system a grandfather is his grandson's elder brother and they both belong to the same group,* and work together in opposition to sons and fathers. Of course, there may be nothing in it, but why not try? If there is a connection it follows that the Plains Indian Societies are derived from some people with alternating generations. Again, some societies practise "backward

* Rivers: *Melanesian Society*, Vol. I, p. 276. In the interior of Vitilevu the groups are called *takō* and *larō*.

speech," that is, they say the reverse of what they mean (*The Societies of the Crow, &c.*, p. 288). Now, I should like to suggest that this is only a case of that crossing or inversion which is found in various places associated with the dead, as, for instance, returning from a funeral in the inverse order of the going (Eddystone Island, Solomons), crossing the arms or legs. Be it noted that in Leper's Island backward speech is used in speaking to ghosts.* If backward speech is but one application of the same idea, it follows that all these societies are, or were, connected with ghosts, a fact which is obvious on other grounds. Thus, as we go further back, we seem to come nearer to the Melanesians.

Mr. Lowie's summary has cleared the way for such investigations. If anyone chooses to pursue them, Mr. Lowie's bibliography and his index will prove a great help; but let us hope that our author will undertake it himself and thus do full justice to his previous work.

A. M. HOCART.

Folklore.

Elliot Smith.

The Evolution of the Dragon. By G. Elliot Smith. 8vo., 234 pp. 35 figs.
Longmans, 1919. 10s. 6d.

42

A true remark is made about "those confusions with which the pathway of mythology is so thickly strewn." The subjects discussed here are so diverse that these confusions must certainly be concerned (in the past or the present) to bring them all into connection. Libations and incense (as the fluids and odour of life), moon and sky worship, cow worship, dragons, rain-gods, "The destruction of mankind," thunderbolts, Aphrodite, cowry shell symbolism, the shell trumpet the giver of life, the Great Mother, octopus, pteroceras, swastika, the mother-pot, the double axe, the mandrake, the pig, gold, and the serpent; such are the connected contents of this work, ranging over all the Old World and the New.

The methods of thought avoid the obvious. The number four is said to derive its importance from four-sided buildings, and twenty-eight has special sanctity from the moon; hence the importance of seven as the fourth of twenty-eight. The vulgar observation of the quarters of the moon as the obvious divisors of time gives way to the connection with four-square buildings and cardinal points.

"The seven-headed dragon probably originated from the seven Hathors," the goddesses of beauty. We read of "the identification of the cow with the Great Mother, the sky, and the moon. Once this had happened the process seems to have been extended to include other animals which were used as food, such as "the sheep, goat, pig and antelope." Why? In the Eleusinian mysteries "the pearl's place is taken by the pig, both of them surrogates of the cowry." "The pig associations of Aphrodite afford clear evidence that the goddess was originally a personification of the cowry."

It was "discovered" that they could make more durable and attractive models of "cowries and other shells by using the plastic yellow metal which was lying about in these deserts (!) unused and unappreciated. This practice first gave to the metal gold an arbitrary value . . . for the peculiar life-giving attributes of the shells modelled in the yellow metal came to be transferred to the gold itself . . . and were in large measure responsible for the hold gold acquired over mankind." But it so happens that all this pre-eminent importance of the cowry in prehistoric ideas is not reflected in the discoveries, where that shell is much rarer than others down to 900 B.C., and the oldest gold cowry known is of the XIIth dynasty. The pendants of the collar used as the sign for gold are not cowries but petals of

* Codrington, *Melanessians*, p. 224.

flowers. Jade was confused "with the magical reputation of gold and pearls," though things less alike would be hard to find. "Thus jade became the nucleus "around which the distinctive civilisation of China became crystallised." "By a "similar process diamonds acquired the same reputation in India."

The complications of the relation of the late goddess Hathor to the Osirian family "was responsible for originating the belief in the incestuous practices of the "divine family . . . Incest became a royal and divine prerogative which was sternly "forbidden to mere mortals and regarded as a peculiarly detestable sin." Now the reprobation of incest simply does not exist in races which occupied a large part of the world; there was half-sister marriage in Greece, there was full-sister marriage common in Egypt. The tabu on near marriage is peculiar to some countries, and carried to excess in India and the Roman Church; but we must always regard the tabus as being the exceptional condition, and not the practices which they limited.

It is only possible to state the subjects, and give some samples of the author's assertions. To discuss any of these matters would far exceed a review.

W. M. F. PETRIE.

South America: Ethnography.

Bolinder.

Det Tropiska Snöfjällets Indianer, från en tvåårig forskningsresa till Sierra Tairona och Sierra Motilon, Sydamerika. Av Gustaf Bolinder. Stockholm : Albert Bonniers Förlag. 1916.

43

In the year 1914, just before the outbreak of war, Mr. Bolinder and his young wife started on a voyage of scientific research from Sweden to Columbia, in the north-west of South America. They reached Santa Marta, a mosquito-plagued, banana-shipping port, and were detained there for several months waiting for instructions and supplies from home—a detention increased by the war—and there their little girl was born. A fortnight later they set out with the babe on a journey up to the mountains. They encountered many difficulties and disappointments, but notwithstanding the imprudence of taking a mother with so young a child on such a journey, they came triumphantly through them all. This book is a popular account of what they did. It contains little direct anthropological information, but is illustrated by plates and figures in the text, some of which give rise to the hope that in the scientific account now being prepared by the author more of interest and novelty will be found. He is obviously honest and trustworthy, but a little more humour would have enlivened the narrative, which, except at one point, is not particularly exciting.

The more or less savage mountain-tribes visited were the Ijea (with whom several months were spent), the Motilon, the Busintana, the Köggaba, and the Chimila. Naturally it is the Ijea who are most fully described. Some account is given of their life, their birth and death ceremonies, their belief in the wanderings of the dead among the snowy mountains and desolate valleys (which they regard with awe), their shamans, called *mamas*, the ceremonies which the *mamas* conduct, their education, and their taboos. The author was particularly anxious to obtain articles of ethnographic interest. The Ijeas had little objection to aid his collection, but they refused to sell clothes—doubtless for fear of witchcraft, though the author does not say so—a refusal shared by a Chimila from whom the author bought many other articles without difficulty. They also refused to be photographed, lest they should die. Among the Köggaba he found that the husband and wife did not live together, and the men had a club-house that women were for-

bidden to enter. Between the dwellings was a stone on which the wife put her husband's food. But we are told little or nothing about the organisation of the tribes, or how they reckoned kinship. Probably the author has reserved details for the more elaborate work he is preparing on these little-known peoples, of whose approaching fate from the unscrupulous pressure of their "civilized" neighbours, and the indifference and corruption of the Government, he takes a gloomy view.

E. SIDNEY HARTLAND.

ANTHROPOLOGICAL NOTE.

A Committee was called into existence a year ago by the Royal Anthropological Institute to prepare a card catalogue of rude stone monuments and allied structures with a view to more detailed comparative study of their types and distributions. 44

The Committee includes Prof. W. Wright, Dr. R. R. Marett, H. Balfour, Prof. T. H. Bryce, O. G. S. Crawford, Willoughby Gardiner, G. A. Garfitt, E. T. Leeds, A. L. Lewis, Prof. J. L. Myres, Prof. R. A. S. Macalister, H. J. E. Peake, Prof. R. W. Reid, Reginald A. Smith, Admiral Somerville, R. H. Worth and Prof. H. J. Fleure (Hon. Sec.), and the Institute agreed to help to defray expenses of the cards, etc., and to house the catalogue when complete. Two members of the Committee gave cheques towards initial expenses, and the British Association gave a grant in aid to be administered by a Committee of that Association, including Dr. R. R. Marett (Chairman), Prof. J. L. Myres, Mr. H. J. E. Peake and Prof. H. J. Fleure (Hon. Sec.), all members of the previously appointed Committee.

The first duty of the Committee has been to make a tentative classification of types of rude stone monuments and to add to it notes for the benefit of volunteer helpers who, it is hoped, will offer to make catalogues for various districts in collaboration with the Committee. The office of the Committee is at 1, Marine Terrace, Aberystwyth, Wales.

The scheme of classification and the notes to guide observers are appended.

COMMITTEE FOR THE CLASSIFICATION AND DISTRIBUTION OF RUDE STONE MONUMENTS AND ALLIED STRUCTURES.

I. Monolith.

- (a) Rude (unsculptured) standing stones, menhirs. Exclude such as have relation to a series, or are known to be single survivors of series. Note any with holes through them.
- (b) Other rude (unsculptured) single stones of individual character not included in the above.
- (c) Single stones, standing or otherwise, with sculpture, cup and other markings, etc.

II. Alignment.—Stone rows of two or more stones—single, double, triple, etc.—without capstones.

- (a) Alignments without either circle or standing stone directly attached.
- (b) Alignments with attached circle or circles.
- (c) Alignments with attached standing stones.
- (d) Alignments with circle and standing stone or stones attached.

NOTE.—(1) Mention any significant passage between stones of an alignment.

(2) The alignment may be straight or curved or angular.

III. *Trilithon*.—Standing stones with capstone.

- (a) A pair of standing stones under one capstone or lintel.
- (b) Standing stones in pairs or aligned, with several capstones—exclude circles.

IV. *Circle*.—Single or concentric, without lintels.

- (a)—(i) With intervals between the stones, and without trace of significant stone or earth monuments within the circle.
- (ii) With a recumbent stone, deliberately placed (not a fallen upright) at one part of the circle, the remainder being upright.

NOTE.—The part of the circle in which the recumbent stone is placed should be stated (*e.g.*, western, south-western, etc.).

(iii)—(a) Enclosing standing stones or other significant monuments.

Cross-references to I, II, etc.

- (b) With single stones, alignments, etc. relating to the setting, but outside the circular area. Cross-references to I, II, etc.
- (b) Lintels or capstones, with or without related monuments. (Cross-reference to III.)

(c) Retaining walls enclosing barrows, cairns, etc.

NOTE.—Retaining walls enclosing barrows, etc. have the distinguishing feature that the stones approach each other closely and are often set with the largest dimension horizontal.

V. *Group*.—Groups of stones formally arranged, the stones being either pillars or blocks. (*Triangles, Parallelograms, &c.*)VI. *Dolmen*.—Structures formed of uprights, or blocks, under one capstone.VII. *Burial Chamber*.—(*Passage grave*)—chambered structures formed of series of uprights or blocks covered—

- (a) By a series of capstones forming a flat roof;
- (b) By a series of capstones forming a corbelled roof (*false arch*).

NOTE :—(1) Whether there is an ante-chamber, or a specialised doorway, or both;

Whether the entrance is at one or other of the ends or at the side, and further, whether the passage grave is related to alignments or circles, or both.

(2) Whether the chambered structure maintains a fairly uniform breadth or widens or narrows in significant fashion, and whether one end is horned or not.

(3) Whether there are traces of sculpture or special marks on any of the stones related to it, or holes designedly devised through or between stones.

(4) Whether there are, or appear to have been sub-chambers or lateral chambers, and what were the positions and relations of these.

(5) Whether there is a mound or cairn covering the whole structure or banking up the sides.

(6) Whether there are related monuments (insert cross-references).

VIII. *Stone Cist* (*Kistvæn*), completely closed and built of slabs, with no open access to interior—

- (a) Without any over-ground structure to mark the site;
- (b) Enclosed in an earthen mound or barrow;
- (c) Enclosed in a heap of loose stones or cairn;
- (d) Not enclosed in mound or cairn.

IX. *Unclassified.*

- (a) Any rude stone monument which the reporter thinks should be catalogued, but which does not come clearly within the several items of the above classification.
- (b) Any natural feature of the surrounding scenery apparently associated with a rude stone monument, which the reporter thinks should be catalogued. Among these may be mentioned prominent mountain summits, or tors or hill-crests, or glacial boulders, especially such as are visible on the skyline. The bearing of these features from the monument should be stated, also whether bearing is magnetic or corrected.

X. Folklore and historical connections of any monument (cross-references should be inserted).

Place-names with possible associations, site, features, etc., should be noted carefully.

NOTE.—(a) Care should be taken to send all possible detail of monuments no longer existing.

(b) Plans, photographs, etc., or other views of any rude stone monuments, or information or extracts from, or references to, publications about them or copies of such publications, may be forwarded to the Honorary Secretary at any time.

(c) All plans should be drawn with the true north represented at the top end of the paper; that is, as it is on every modern map. If the plan is the result of a compass survey, the variation of the compass (magnetic declination) employed by the reporter in drafting his plan, should be stated.

The date of the survey and the scale employed should be given. (It is suggested that 10 feet to an inch is a good general scale for plans of most rude stone monuments.)

The Ordnance Sheet on which the position of the monument may be found should be stated, and its actual position thereon designated by rectangular co-ordinates, in inches from the N.E. corner of the sheet, e.g., west 7·5 inches, south 1·2 inches.

(d) Information concerning earth rings and other matters probably related to rude stone monuments will be welcomed.

(e) Mention should be made of any barrow, cairn, stone cist, or other structure (or remains of such) which appears to have some relation, by bearing or otherwise, to the monument under discussion.

(f) CROSS-REFERENCES are of great importance.

(g) It is suggested that for uniformity and convenience of storage, writings and drawings as far as possible should be on sheets or half-sheets of foolscap, and on one side of the paper only. It is proposed to set apart a wrapper eventually for each group of monuments in order to record accurately the bibliography and illustrations of each.

All correspondence should be addressed to Professor H. J. Fleure (Hon. Sec.), I, Marine Terrace, Aberystwyth.



FIG. 1

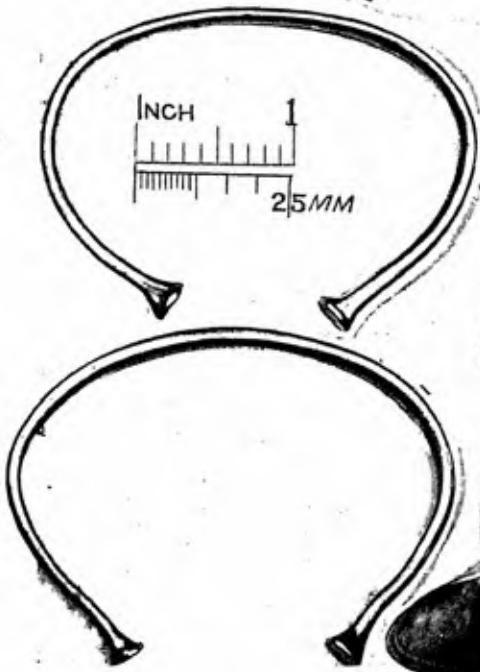


FIG. 2

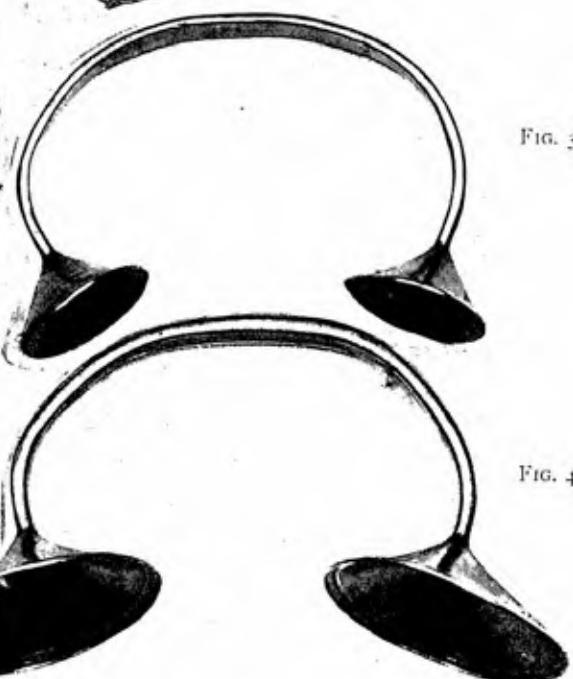


FIG. 3

FIG. 4

GOLD DISC AND CUP-ENDED RINGS FOUND AT LATTOON, CO. CAVAN
(about $\frac{1}{2}$).

ORIGINAL ARTICLES.

Ireland: Archaeology. With Plate F. Armstrong.
A Find of Gold Objects from Lattoon, Ballyjamesduff, Co. Cavan. By E. C. R. Armstrong, F.S.A., M.R.I.A. 45

An important find has recently been acquired as treasure trove by the Royal Irish Academy. It includes two penannular rings with cup-shaped ends; two bracelets; and an elaborately decorated disc. All the objects are gold.

They were obtained from the finder, Mr. William O'Hara, of Aghaloughan, Ballyjamesduff, through the good offices of Mr. William J. Lundy, of Mayfield, Zion Road, Dublin.

Mr. O'Hara, who was the only man working on the bog on that day, discovered the objects on 14th June, 1919. He found them at a depth of four feet below the present surface of the bog, where the ground was quite firm. The site of the find is situated in the townland of Lattoon, south of Nadreegel Loughs, about $1\frac{3}{4}$ miles S.E. of Lattoon school house, Mr. O'Hara's dwelling being some $5\frac{3}{4}$ miles from the school, in the townland of Aghaloughan. (See Ord. Sur., Sheet 33, Co. Cavan.)

The objects were found all together, the disc being folded over them. Mr. O'Hara states that the ground beneath them was covered with gold dust, but that nothing else was found.

From Mr. O'Hara's account it appears that the bog, which was cut away about 200 years ago, remained in meadow up to the last three years, when, bog becoming scarce, it was re-opened, as there were still six feet of bog in the place. Old neighbours about the bog at Aghaloughan state that many of them had heard from their parents that the bog was originally very deep, two breasts of turf having been taken from it. This would mean, in Mr. Lundy's opinion, that at least nine feet were removed before the present cutting was made; so that the gold objects were found approximately 13 feet below the former surface of the bog.

The objects comprised in the find may now be described. The penannular rings with cup-shaped ends and the bracelets belong to well-known types. The larger ring with cup-shaped ends (Plate F, Fig. 4) weighs 1 oz. 10 dwt. 15 gr.; three raised lines encircle the inside of the cups. The smaller (Plate F, Fig. 3) is unornamented; it weighs 17 dwt. 20 gr. The bracelets are made from gold rods of circular section, having expanded flattened cup-shaped ends. The heavier (Plate F, Fig. 2) weighs 13 dwt. 20 gr.; the lighter (Plate F, Fig. 1) 12 dwt. 20 gr. The disc, which is of great interest, measures 4·8 inches in diameter; it equals a thin sheet of paper in thickness, and weighs 3 dwt. 20 gr.

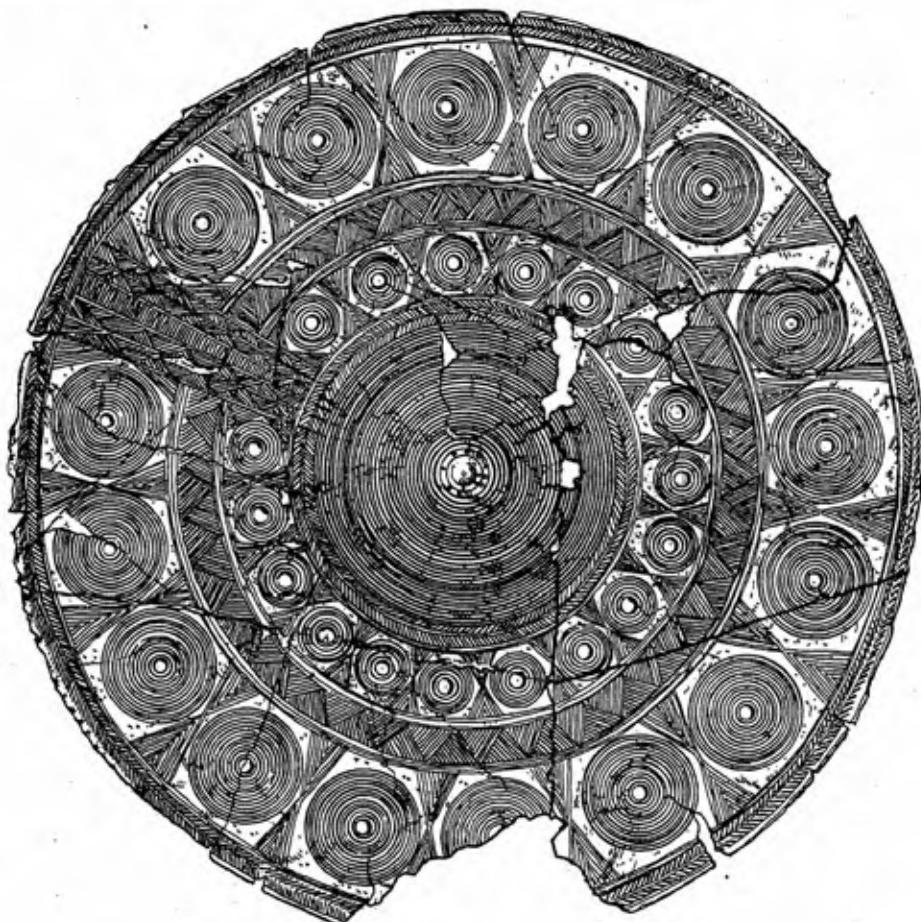
According to Mr. O'Hara, it was found wrapped round the other objects. It is considerably damaged and is in three pieces, having been apparently cut in one place. When it reached the Academy it was much bent, but appears to have been originally slightly convex. It has been carefully straightened by Mr. J. C. Wallace, of Messrs. Edmond Johnson, Ltd.

The ornamentation of the disc, which was probably made by pressing the gold plate into a bronze matrix, is so remarkably fine that it is hardly going too far to describe it as the most delicately decorated gold object belonging to the Bronze Age that has so far been acquired by the Irish National Collection.

Examination of the illustrations (Plate F and text-figure) will show that the ornament consists of a small central boss encircled by rows of small raised dots and concentric circles, terminated by a band of herring-bone pattern. Beyond this is a band composed of small bosses centering concentric circles, each circle being separated from its neighbour by a kind of dice-box shaped figure. This is bordered by a narrow band of shaded dog-tooth ornament, beneath which is a broad band of similar pattern.

to the upper, composed of circles separated by dice-box shaped figures. The whole design is finished off by a band of herring-bone pattern.

It is to be noticed that with the exception of the central ornament of concentric circles edged by a band of herring-bone pattern, the decoration is not continuous. It is intercepted at one point by a band, increasing in width as it nears the edge, composed of a central row filled with horizontal lines, edged on either side with a band of chevron ornament.



GOLD DISC FOUND AT LATTOON, CO. CAVAN. (†)

The principal feature of the decoration is therefore a combination of concentric circles with chevron ornament. The dice-box figures between the concentric circles are apparently a variety of the cross and circle pattern characteristic of many of the Irish gold discs preserved in the Irish national collection.*

Of these there are fifteen, ten of which were found in pairs. Their ornamentation is composed, in eleven cases, of a cross combined with circles, forming a kind of four-spoked wheel figure. In three of the remaining examples the decoration consists of

* For particulars as to many of these discs, see Frazer, *Journal Royal Society of Antiquaries of Ireland*, XXIX, pp. 39-43; Petrie, *Dublin Penny Journal*, I, p. 244; Day, *Journal Royal Society of Antiquaries of Ireland*, XXIX, pp. 414, 415, 416; and MacAdam, *Ulster Journal of Archaeology*, IV, 1856, pp. 164-168.

chevron patterns combined with concentric circles; in one the chevron patterns are absent. It is to be noted that, with one exception, the centres of all the discs are perforated with two small holes, as if these were used for fastening them to some object.

The function of these discs has been a matter of doubt. An early mention of their discovery is to be found in Camden's *Britannia*,* where a disc is figured. It is described as having been one of a pair dug up, in peculiar circumstances, near "Belishannon, south from Donegall." Dr. Petrie,† Sir William Wilde,‡ and Dr. W. Frazer§ considered such discs to have been personal ornaments. But they are too frail to have been so used unless they were backed by some stouter material.

A discovery, however, made in September, 1902, at Trundholm Moss, in the north of Zealand,|| has suggested another purpose for them. When Trundholm Moss was being brought under cultivation the plough struck an object which proved to be an almost complete miniature carriage of bronze with movable wheels; on, this was mounted a horse drawing a disc, placed vertically on the two back wheels of the car, the horse being apparently harnessed to the disc by small loops, one on the disc and one on the horse's neck, a rein being probably passed through the latter. The bronze disc, which was made up of two slightly concave plates, was ornamented with spirals. To its front was attached a plate of gold, the design being shown on the gold by pressing it on to the bronze. It was held in place by means of a copper wire hammered over the gold into a groove near the edge of the disc. The design on the back of the disc is not the same as that on the front and to it no gold plate is attached.

Mr. R. A. Smith,¶ F.S.A., of the British Museum, was the first to point out the important bearing of the Trundholm Moss find on the thin discs of gold found in Ireland.

Mr. Smith compared the Trundholm disc with a bronze disc, illustrated in his paper, of Irish origin now preserved in the British Museum, which has been broken across and lacks the gold covering disc. It has, however, the two loops at the edge, one to fit into the socket of the carriage, and the other for the rein passing between it and the horse. The disc is ornamented with concentric circles. Mr. Smith has pointed out that the most striking parallel to the Trundholm disc, is an imperfect bronze disc found in Ireland having a gold covering, three inches in diameter.

Mr. Smith follows Dr. Müller in the opinion that the fact that intentional damage had been done to the carriage found at Trundholm, before it was deposited in the ground, showed that it was a votive offering, while the disc mounted in such a fashion could be nothing but a representation of the sun.

The late M. Joseph Dechelette,** in his *Manuel d'Archéologie*, illustrated three discs from Mr. Smith's paper. Speaking of the Trundholm discovery he wrote, that the publication of this curious object, incontestably an image of the solar disc, revealed the precise destination of a whole series of gold discs more or less incomplete.

Dr. Gustaf Kossinna†† has illustrated a gold sun-disc found in a man's grave in a hill near the Liebfrauenkirche at Worms.

* Vol. II, 1822, edited by Bishop Gibson, p. 1411.

† Dublin Penny Journal, I, p. 244.

‡ R.I.A. Catalogue, *Antiquities of Gold*, p. 82.

§ Journal of the Royal Society of Antiquaries of Ireland, XXIX, pp. 30-48.

|| Müller, *Nordiske Fortidsminder*, I, pp. 303-321.

¶ Proc. Society of Antiquaries of London, 2nd S. XX, pp. 6-13. See also *ibid.*, pp. 254, 255.

** Vol. II, p. 415.

†† *Mannus-Bibliothek*, No. 12, pp. 43, 44, and Pl. xvi.

No gold sun-discs have been found in Italy; but an ornamented disc of horn, recognised as a sun-disc, has been found in the Terramara of Castione.*

The Trundholm disc is dated by Dr. Sophus Müller before the year 1000 B.C. But Mr. Smith† states that Professor Montelius (in a letter) assigns it to the end of his second, or possibly to the beginning of his third, period of the Scandinavian Bronze Age, that is about 1300 B.C.

In comparing the Trundholm and the Lattoon discs it may be borne in mind that an early connection between Scandinavia and Ireland is indicated by the finding of gold lunulae, copied from Irish examples or imported from Ireland, in Scandinavia, while bronze axe-heads recognised as belonging to types characteristic of the British Islands have been found in Scandinavia.‡ A number of amber beads probably imported from Scandinavia have been found in Ireland.§

Whatever may have been the opinion about the gold discs already in the collection, the Lattoon disc resembles so greatly the example found at Trundholm that it seems difficult to resist the conclusion that both it and they belong to the same family and were destined for the same purpose, so that the present find lends support to Mr. Smith's views concerning the Irish discs, which he put forward as long ago as 1904.

The Lattoon find is of additional importance in that now for the first time a gold disc has been found in Ireland with objects which give information as to the period to which it belongs, for the gold rings with cup-shaped ends and the bracelets are of a well-known type, which can be dated to the later portion of the Bronze Age.]

Without entering upon the question of sun worship in Ireland it is to be noted that figures representing suns are engraved upon one of the boundary stones of Dowth, co. Meath; while "evidence of the solar cult is abundant at Loughcrew; rayed suns and wheel-like figures are plentiful."||

Ipswich: Archaeology.

Moir.

An Early Neolithic "Floor" discovered at Ipswich. By J. Reid Moir.

46

In the July issue of MAN, 1918 (Vol. XVIII, No. 7), the present author published an account of an Early Mousterian occupation-level, with abundant remains of reindeer occurring under gravel at the site of the Electric Power Station, Constantine Road, Ipswich. His attention was directed to this discovery by the kindness of Mr. Frank Ayton, chief engineer and manager at the Power Station, and he has again to thank this gentleman for informing him of the further diggings (to provide a water tank for a new turbine engine), which have resulted in the discoveries now to be described. These new excavations have been carried out in the south-western corner of the Ipswich Recreation Ground, and are separated from the Electric Power Station by a road known as Portman's Walk. The site under description is situate at the bottom of the broad Gipping Valley, and the newly-constructed tank is placed in close contiguity to a back-water of the now canalized stream.

* Schiff-Giorgini, *Bullettino di Paleontologia Italiana*, 1912, XXXVII, pp. 17-21.

† *Op. cit.*, p. 18.

‡ Montelius, *Svenska Fornminnesföreningens Tidskrift*, vii, pp. 133-137.

§ Coffey, *Proc. Royal Irish Academy*, XXX, Sec. C, pp. 85-7.

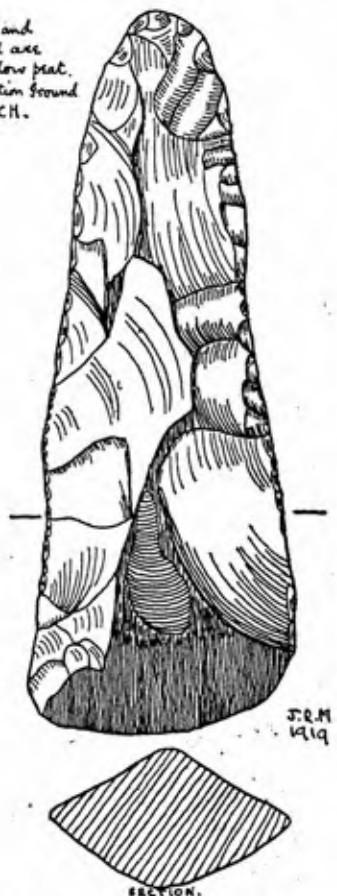
|| Coffey, *ibid.*; Montelius, *Archæologia*, 61, Pl. XVIII, Nos. 156, 159, and pp. 143, 162.

¶ See Coffey, *New Grange, etc.*, 1912, p. 54, and fig. 31, also p. 89.

During last July (1919) the author paid several visits to the Recreation Ground digging, and made notes of the following section (Fig. 1):—Commencing from the present surface of the ground there were exposed in the excavations : (a) three to four feet of moved soil—(this material must have been carted to the site in recent times to fill up a depression in the ground); (b) two to three feet of peat; (c) an occupation-level, or “floor,” six to nine inches in thickness, containing large quantities of burnt flints, a chipped and polished flint axe (Fig. 2), together with a number of mammalian bones; (d) a dark-coloured gravel (called by the workmen engaged in the digging “ballast”), with pieces of wood and peaty material in its upper portion. This gravel contained one or two humanly-fashioned flint flakes (Fig. 3) exhibiting a peculiar black staining (the

FIG. 2

Chipped and
polished axe
from below peat.
Recreation Ground
IPSWICH.



same deposit. The relic-bed underneath the peat (Fig. 1) was of a dark grey colour caused, apparently, by the very large quantities of fragments of calcined flints, and other

PRESENT SURFACE OF GROUND.

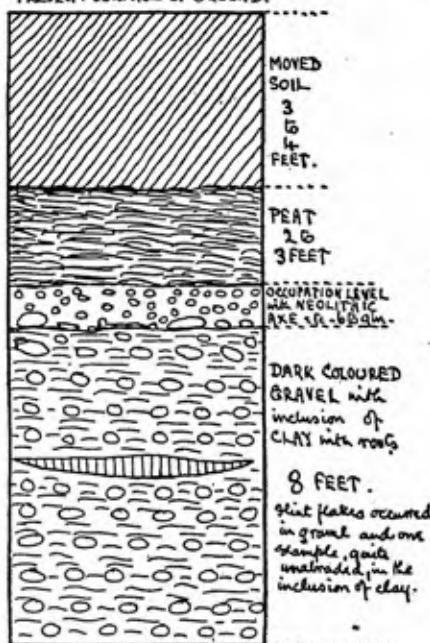
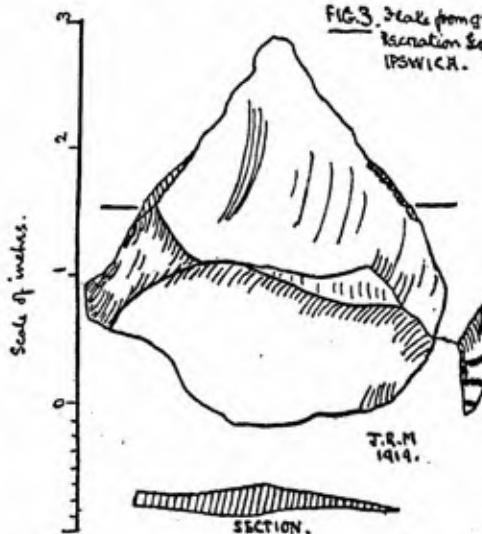


FIG. 1
DIAGRAMMATIC SECTION OF
DEPOSITS IN RECREATION
GROUND.
IPSWICH. J.R.M. 4119.

interior of the flint is of a yellowish coffee colour), very little abrasion, and some extensive (?) calcareous incrustations upon their surfaces. In the gravel occurred also an inclusion of clay with roots (the author was unable to ascertain the extent of this particular deposit), and in it, according to the testimony of a reliable workman, there was found the quite unabraded and unpatinated flake of black flint illustrated in Fig. 4.

If a comparison is made of the drawing of the succession of the beds above described, with that published by the author in his former note in *MAN* (Vol. XVIII, No. 7, 1918, Fig. 2) it will be seen that there is a rather close resemblance, and, as the two sites are not more than three hundred yards apart, it would seem probable that the gravels seen in both diggings are portions of the

burnt material occurring at this horizon. The peat, especially towards its base, was found to be very rich in molluscan remains, and these, together with the mammalian bones, were found also at some depth in the underlying gravel. But though this was the case the author does not wish to infer that these remains are necessarily of the age of the gravel itself. He thinks it more probable that the specimens belong to the occupation level upon the surface of the gravel, and that, owing to a slight amount of water-action of some kind, there has been a resorting of the upper portion of this deposit. Fortunately, a "dateable" flint implement was found in the surface of the gravel underlying the peat. This specimen is made of grey flint, is not rolled nor patinated, and represents a well-recognised type of early Neolithic axe of the chipped and polished variety (Fig. 2). Two flakes found by the author in a heap of gravel taken from the digging have already been mentioned. One of them (Fig. 3) possesses a facetted striking-platform,



flakes found by the author in a heap of gravel taken from the digging have already been mentioned. One of them (Fig. 3) possesses a facetted striking-platform,

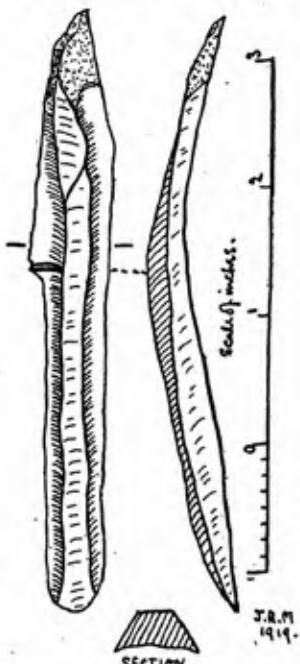


FIG. 4. Flakes from inclusion of clay in gravel. Recreation Ground. IPSWICH.



and bears upon its upper surface truncated flake-scars demonstrating that it was struck from a previously-prepared core of flint. These flakes, which appear to be

of the Mousterian order, are almost certainly more ancient than the Neolithic axe above described. The unabraded flake (Fig. 4) recovered from an inclusion of clay in the gravel (Fig. 1) is of the nature of a blade. It exhibits signs of use at one end and its form is very similar to continental examples from Les Eyzies, Laugerie Basse, and elsewhere. The only other implement recovered from the Recreation Ground site is a polished bone point (Fig. 5) made from the ulna of a large red deer. This specimen was found in some of the material from the excavation, and, by its condition, would appear to have been derived from the peat. A small piece of pottery was discovered near the bone point, and Mr. Reginald Smith has kindly given the author the following opinion upon it:—"The pottery " seems to have wheel marks outside, and although rough is hard-baked, harder " than the early Iron age material generally is, so say transition to Roman, and the " bone (point) may well be contemporary."

The mammalian bones were sent to Professor Arthur Keith, F.R.S., who, with his usual kindness, examined them and reported that the following animals were represented:—Horse (two kinds, large and small), ox (one variety large enough to be *Bos primigenius*), red deer (very large), large dog (? wolf), pig, and sheep. The two last-mentioned animals were sparingly represented, and the horse bones had in many cases been smashed up, apparently for the extraction of marrow. A sample of the peat and of the underlying Neolithic stratum were sent to Mr. A. S. Kennard, F.G.S., who, with Mr. B. B. Woodward, F.L.S., have supplied the author with the following list of mollusca, Mrs. E. M. Reid, F.L.S., being responsible for the list of plant remains which is now published. It is needless for the author to say how very grateful he is to these investigators for the trouble they have taken in this matter, and for supplying him with the most valuable part of this note.

REPORT ON THE NON-MARINE MOLLUSCA. By A. S. Kennard, F.G.S., and B. B. Woodward, F.L.S., etc.

The Holocene deposits of Suffolk have received but scant attention, and it was therefore a matter of satisfaction when Mr. J. Reid Moir informed us of these excavations and solicited help in working out the material. He kindly sent a large sample of the peat as well as a series of shells which he had collected. A sample from the gravel was also sent, which obviously had been a hearth site. It contained many small burnt flints, fragments of charcoal, as well as vegetable débris and shells. From these three sources we are able to record thirty-eight species, but by a curious coincidence the number of species from both the gravel and the peat is identical, viz., thirty-one.

LIST OF SPECIES.

				Peat.	Gravel.
<i>Vitrea crystallina</i> (Müll.)	-	-	-	-	×
<i>Polita nitidula</i> (Drap.)	-	-	-	-	×
<i>Arion</i> , sp.	-	-	-	×	×
<i>Pyramidula rotundata</i> (Müll.)	-	-	-	-	×
<i>Vallonia pulchella</i> (Müll.)	-	-	-	×	×
<i>Hygramia hispida</i> (Linn.)	-	-	-	×	×
<i>Helicigona lapicida</i> (Linn.)	-	-	-	×	-
<i>Arianta arbustorum</i> (Linu.)	-	-	-	×	×
<i>Helix nemoralis</i> , Linn.	-	-	-	-	×
<i>Cochlicopa lubrica</i> (Müll.)	-	-	-	×	×
<i>Succinea pfeifferi</i> , Rossm.	-	-	-	×	×
<i>Carychium minimum</i> , Müll.	-	-	-	-	×

					Peat.	Gravel.
<i>Aneylus fluviatilis</i> (Müll.)	-	-	-	-	-	X
<i>Acroloscus lacustris</i> (Müll.)	-	-	-	-	X	X
<i>Limnaea pereger</i> (Müll.)	-	-	-	-	X	X
" <i>palustris</i> (Müll.)	-	-	-	-	X	X
" <i>truncatula</i> (Müll.)	-	-	-	-	X	X
" <i>stagnalis</i> (Linn.)	-	-	-	-	X	X
<i>Planorbis albus</i> (Müll.)	-	-	-	-	X	X
" <i>crista</i> (Linn.)	-	-	-	-	X	X
" <i>carinatus</i> (Müll.)	-	-	-	-	X	-
" <i>umbilicatus</i> (Müll.)	-	-	-	-	X	-
" <i>vortex</i> (Linn.)	-	-	-	-	X	X
" <i>leucostoma</i> , Millet	-	-	-	-	X	-
" <i>contortus</i> (Linn.)	-	-	-	-	X	X
" <i>fontanus</i> (Lightf.)	-	-	-	-	X	-
<i>Physa fontinalis</i> (Linn.)	-	-	-	-	X	-
<i>Bithynia tentaculata</i> (Linn.)	-	-	-	-	X	X
" <i>leachii</i> (Shepp.)	-	-	-	-	-	X
<i>Valvata piscinalis</i> (Müll.)	-	-	-	-	X	X
" <i>cristata</i> , Müll.	-	-	-	-	X	X
<i>Anodonta</i> , sp.	-	-	-	-	X	X
<i>Sphaerium corneum</i> (Linn.)	-	-	-	-	X	X
<i>Pisidium amnicum</i> (Müll.)	-	-	-	-	X	X
" <i>subtruncatum</i> , Malm.	-	-	-	-	X	-
" <i>casertanum</i> (Poli)	-	-	-	-	X	X
" <i>milium</i> , Held	-	-	-	-	X	X
" <i>pusillum</i> (Gmel.)	-	-	-	-	X	X

The Pisidia were all dwarfed.

All the species are known to be living in Suffolk and none calls for particular comment.

The importance of these examples is enhanced by the occurrence of associated human relics and the shells from the gravel can be assigned to the Neolithic period.

The facies of both series would lead one to assume that the climate was similar to that of to-day.

REPORT ON THE PLANTS.

A few seeds and other vegetable remains which were obtained during the washing of the material were submitted to Mrs. E. M. Reid, F.L.S., and were identified as follows:—

From the peat:—

- Carex pulicaria*, Linn.
- Scirpus lacustris*, Linn.
- Ranunculus acris*? Linn.
- Caltha palustris*, Linn.
- Myrcophyllum verticillatum*, Linn.
- Œnunthe crocata*, Linn.
- " *pimpinelloides*, Linn.
- Erica cinerea*, Linn.
- Meryanthes trifoliata*, Linn.

From the gravel:—

- Potamogeton*, sp.
- Scirpus lacustris*, Linn.

Œnanthe crocata, Linn.

„ *phellandrium*, Lam.

Ajuga reptans, Linn.

Alnus, sp.

Quercus?

Mrs. Reid notes: "All show marsh conditions. The specimen recorded as 'Quercus' is, perhaps, a fragment of an abortive acorn which might either have grown beside a marsh or been carried into it."

It would appear from the evidence supplied by this digging in the Ipswich Recreation Ground that (a) the peat-bed is a comparatively recent accumulation; (b) the occupation level underlying the peat is referable to an early stage of the Neolithic period, and (c) the subjacent gravel—the base of which was not reached in the excavations—is of pre-Neolithic date, and contains flint flakes of the kind generally known as Mousterian. In an inclusion of clay in the gravel a quite unabraded flint flake was found, and the appearance of this specimen is comparable with many others known to be of Upper Palæolithic age. Thus, within an area of a few hundred yards at this Ipswich site, there have been found specimens referable to a number of prehistoric cultures ranging from an early Mousterian "floor," with abundant remains of reindeer [MAN, 1918, 7] to the Early Neolithic, and even later times.

Africa: Duodecimal System.

Malcolm.

Short Notes on the Numerals of the Egháp and Bali Tribes, Cameroons Province, West Africa. By L. W. G. Malcolm. 47

The material on which this paper is based was collected at the town of Bagam (Cameroons Province, West Africa) in 1917, when I was able to obtain a certain amount of information concerning the Egháp and Bali tribes. I am now engaged in preparing material for publication concerning the former, which will appear in due course. In the case of the Balis I have obtained a certain amount of information from a small book published in 1915.* This was obtained from my interpreter who was formerly a teacher in the Mission School in Bali itself. I have retained the original orthographical signs as this work is not likely to be very widely known. In some cases the words have had to be slightly altered. As a rule the *b* in *n'dab* is usually softened into *p*.

In a later paper I propose to show the influence that the Bali tribe has had on the tribes of the southern part of Adamawa, both as regards their language and material cultures. This tribe, which is of admittedly Sudanese origin, was driven south by the Fulani invaders from the north, and after many adventures settled in their present location several years ago.

The Egháp in making any calculations always use ten as their unit. As a mechanical aid they have small bundles of sticks, which are tied into fifties or hundreds. For the purpose of trade ten is always called a "tally." Thus thirty of anything is always said to be "three tally" or "tally *n'keyet*." Very large numbers are rarely if ever spoken of, and my interpreter gave me the words for ten and one hundred thousand.

In the Bali language the word *kwatad* is made up from *kúa* (*kwa*) which represents four, and *tad*, which is the old form of *ted*, for three. To define seven the Balis usually show four fingers on one hand and three on the other. *N'gom* is the

* *Grundzüge einer Grammatik der Balisprache*, 1915.

plural of *wom* and *n'gam* is the altered or shortened form. Formerly the words *mon* and *bon* were used in place of *wom* and *n'gōm*:

One -	-	-	-	mo'oh, yeh mo'oh, ta n'dāb.
Two -	-	-	-	m'pá, yeh pá, ba n'dáb.
Three -	-	-	-	n'kyet, kyet, yeh n'kyet, ted n'dáb.
Four -	-	-	-	kúa (kwa), yeh kúa, kúa (kwa) n'dáb.
Five -	-	-	-	n'tang, yeh tang, tang n'dáb.
Six -	-	-	-	n'tó, yeh n'tó, n'tu n'dáb.
Seven -	-	-	-	seh m'ba, yeh m'ba, kwatad n'dáb.
Eight -	-	-	-	fo'oh, yeh fo'oh, fom n'dáb.
Nine -	-	-	-	pfo'oh, yeh pfo'oh, swübo n'dáb.
Ten -	-	-	-	vúeh.
Eleven -	-	-	-	vúeh n'tsóp yeh mo'oh.
Twelve -	-	-	-	vúeh n'tsóp yeh pá.
Thirteen -	-	-	-	vúeh n'tsóp yeh kyet.
Fourteen -	-	-	-	vúeh n'tsóp yeh kúa (kwa).
Twenty -	-	-	-	pa ughúp.
Twenty-one -	-	-	-	pa ughúp n'tsop yeh mo'oh.
Thirty -	-	-	-	kyet ughúp.
Forty -	-	-	-	kúa (kwa) ughúp.
Fifty -	-	-	-	tang ughúp.
Sixty -	-	-	-	n'tó ughúp.
Seventy -	-	-	-	seh m'ba ughúp.
Eighty -	-	-	-	fo'oh ughúp.
Ninety -	-	-	-	pfo'oh ughúp.
One hundred -	-	-	-	n'pwíi.
Two hundred -	-	-	-	n'pwíi yeh pá.
Three hundred -	-	-	-	n'pwíi yeh kyet.
Four hundred -	-	-	-	n'pwíi yeh kúa (kwa).
Five hundred -	-	-	-	n'pwíi yeh tang.
One thousand -	-	-	-	n'kap (n'kei) yeh mo'oh, vúeh n'pwíi.
Ten thousand -	-	-	-	vuelh n'kap.
One hundred thousand -	-	-	-	n'kap n'pwíi yeh mo'oh.

BALI (*Munohā Ka*).
K

- 1 n'dáb n'yin, ta n'dáb, ta n'dáb n'yin.
- 2 n'dáb iba, ba n'dáb.
- 3 n'dáb ited, ted n'dáb.
- 4 n'dáb ikwa, kúa (kwa) n'dáb.
- 5 n'dáb itan, tan n'dáb.
- 6 n'dáb n'tú, n'tú n'dáb.
- 7 n'dáb kwatad, kwatad n'dáb.
- 8 n'dáb ifom, fom n'dáb.
- 9 n'dab swübo, swübo n'dáb.
- 10 n'dáb wom, wom n'dáb.
- 11 n'dáb wom n'tsob n'yin, n'dáb n'tsob n'yin.
- 12 n'dáb wom n'tsob iba, n'dáb n'tsob iba, ba n'tsob n'dab.
- 15 n'dáb wom n'tsob itan, n'dáb n'tsob itan, tan n'tsob n'dab.
- 19 n'dáb wom n'tsob swübo, n'dáb n'tsob swübo, swübo n'tsob n'dab.
- 20 n'dáb n'gom iba, n'dáb, ba n'gam, ba ngam n'dáb.
- 30 n'dáb n'gom ited, n'dáb ted n'gam, ted n'gam n'dáb.

40	n'dáb n'gom ikwa, n'dáb kúa (kwa) n'gam, kúa (kwa) n'gam n'dáb.
50	n'dáb n'gom itan, n'dáb tan n'gam, tan n'gam n'dáb.
60	n'dáb n'gom n'tú, n'dáb n'tú n'gam, n'tú n'gam n'dáb.
70	n'dáb n'gom kwatad, n'dáb kwatad n'gam, kwatad n'gam n'dáb.
80	n'dáb n'gom ifom, n'dáb fom n'gam, ifom n'gam n'dáb.
90	n'dáb n'gom swybo, n'dáb swybo n'gam, swybo n'gam n'dáb.
100	n'dáb n'ky, n'ky n'dáb, n'dáb n'ky n'yin, n'dáb ta n'ky, n'dáb ta n'ky n'yin, ta n'ky n'dáb ta n'ky n'yin.
200	n'dáb n'ky iba, n'dáb ba n'ky, ba n'ky n'dáb.
300	n'dáb n'ky ited, n'dáb ted n'ky, ted n'ky n'dáb.
400	n'dáb n'ky ikwa, n'dáb kúa (kwa) n'ky, kúa (kwa) n'ky n'dáb.
500	n'dáb n'ky itan, n'dáb tan n'ky, tan n'ky n'dáb.
600	n'dáb n'ky n'tú, n'dáb n'tú n'ky, n'tú n'ky n'dáb.
700	n'dáb n'ky kwatad, n'dáb kwatad n'ky, kwatad n'ky n'dáb.
800	n'dáb n'ky ifom, n'dáb fom n'ky, fom n'ky n'dáb.
900	n'dáb n'ky swybo, n'dáb swybo n'ky, swybo n'ky n'dáb.
1,000	n'dáb n'kam, n'kam n'dáb.
2,000	n'dáb n'kam iba, n'dáb ba n'kam, ba n'kam n'dáb.
3,000	n'dáb n'kam ited, n'dáb ited n'kam, ted n'kam n'dáb.
10,000	n'dáb n'tsú, n'tsú n'dáb.
20,000	n'dáb n'tsú iba, n'dab ba n'tsú, ba n'tsú n'dáb.
30,000	n'dáb n'tsú ited, n'dáb ted n'tsú, ted n'tsú n'dáb.
100,000	n'dáb n'tsú wəm, n'dáb wəm n'tsú, wəm n'tsú n'dáb.

Central Africa: Ethnology.

Frazer.

The Mackie Ethnological Expedition to Central Africa.

By

48

Sir James G. Frazer.

The first part of the ethnological exploration undertaken by the Mackie Expedition under the conduct of the Rev. John Roscoe is now complete. It comprises a thorough investigation of the important pastoral tribe, the Bahima, whose country is Ankole, in the western part of the Uganda Protectorate. The Expedition spent over three months (October, 1919—early January, 1920) in the tribe, accumulating a large amount of information on the clans and their totems, the system of government, the kings and their customs, customs concerned with birth, marriage, sickness and death, pastoral life in the kraals, hunting, war and religion. The tribe is divided into three principal clans, each with its totem and sub-totem or taboo. But each of these clans is subdivided into sections, each of them with its totem and sub-totem; and while exogamy of the totem clan is the rule, a man is free to marry a woman of a different section of his own clan, provided that his wife's section has a sub-totem different from his. The kings were believed to be descended from heaven and to be the ancestors of all their people, whom they ruled by divine authority and with absolute power. When a king died his name was dropped, and if it happened to be also the name of a common object, that name was abolished in the language and another word was substituted for it. For example, the late king bore a name which meant "lion"; hence, when he died, the name for lion in the language had to be changed. This custom has rendered it difficult to obtain a correct list of the past kings. The king was never expected to allow himself to fall sick of any complaint which would be likely to impair his strength: he was expected to take his life long before his physical powers had time to decay, and this he did by drinking a poison which proved fatal in a few seconds. Hence the kings used to apply a magical ointment to their hair in order to conceal the ravages

of time. Before his death the king named the son whom he wished to succeed him on the throne, and his wish was usually obeyed, unless one of the other sons refused to accept the decision and fought for the crown.

The Bahima are a purely pastoral people. They despise all tribes who till the ground and eat vegetables. They do not recognise private property in land, deeming themselves free to roam to any part of the country with their herds according to the needs of the cattle. A kraal is regularly understood to include a hundred cows and one bull, tended by three or four herdsmen. It is a circular enclosure surrounded by a thorn fence to keep the cattle from straying by night and to protect them against wild beasts. The huts are arranged at intervals in a circle on the inner side of the fence, and in the middle of the enclosure, or rather nearer the gate, a great fire is kept burning perpetually, day and night, for the benefit of the cows: a sacred character is ascribed to it: the fuel is dried cowdung or grass. The huts are of a beehive shape, of very simple construction, and contain little or no furniture: the occupant usually sleeps on a cowskin stretched on the ground. The cows go and come at call, and are very obedient to the herdsmen. The women churn the milk into butter by rocking it gently to and fro in gourds. The butter milk is drunk by children and women, but rarely by men. Certain cows are dedicated to ghosts, and the milk from them has to be kept separate from the ordinary milk. The ghost of the late owner of the cows always has a special cow of his own, and her milk is poured by the wife into a special vessel, which she places behind her husband's bed; nobody but he or his unmarried children may drink it, a married daughter and her husband may not taste it. The milk is deemed sacred, and by drinking it they believe that they maintain communion with the ghost. Milk from a particular cow, generally an old one, is also set apart for the exclusive use of a girl at puberty. Milk may not be put in an iron vessel nor boiled: to do either of these things would, it is believed, prevent the cows from yielding milk. For a like reason the herdsmen and their wives may not wash daily with water, as such ablutions are supposed to have an injurious effect on the milk; hence the herdsmen instead rub white clay over their bodies, and when it has dried, they rub it off and anoint themselves with butter. A man may not drink milk and eat meat at the same meal; if he has eaten meat, he must give the meat time to digest and leave his stomach before he drinks milk again. This rule is obligatory even on the king. As a rule the Bahima avoid vegetable food, believing that if they ate it their cows would cease to give milk. But if a man is reduced so low as to eat potatoes or beans, he must not only fast for twelve hours afterwards, but take a purgative before he may drink milk again. During her monthly periods, however, a woman is obliged to abstain from drinking milk and is obliged to live on vegetables or on porridge and beer, because it is believed that any cow whose milk she might drink at such times would thereby be rendered barren. However, if her husband can give her for her special use a cow that is past bearing, she may drink its milk without fear of impairing the fecundity of the animal by her potions. Milk in former times was never sold or given to members of other tribes lest they might have been eating other foods and so injure the cows of the Bahima. Further, the Bahima will not themselves cultivate the ground lest by doing so they should cause sickness among their herds. When lightning strikes and kills some cows in a herd, a medicine-man repairs to the spot and appeases the wrath of the god of thunder by an appropriate gift: till that has been done, the milk of the other cows in the herd may not be drunk. When sickness has broken out in a kraal, a medicine-man is called in: he kills a cow and sprinkles its blood on the inmates of the kraal and also on the cattle; then all the people and the cows must pass out of the gateway, jumping over the carcase of the dead cow

as it lies there. The king has his own herds, which are kept in various parts of the country, never in one place.

It is looked upon as a dreadful thing for an unmarried girl to have a child. Her parents disown her and drive her as an outcast from the house. She may not even go out through the gate of the kraal; a gap is broken for her in the fence at the back of the house, and through it she wanders away to find an asylum elsewhere, generally with the despised agricultural peasants. Sometimes such a girl is drowned in the river with stones round her neck. Yet in spite of this rigid virtue before marriage the sexual relations of the women after marriage are very loose; a man regularly shares his wife with his visitors and even with his own father, when his father comes to stay with him. Again, when a man cannot support a wife by himself, he and his brothers will club together and share a wife between them, and the offspring is reckoned to belong to the elder brother; thus fraternal polyandry is a recognized institution in the tribe. Or a poor man may serve a rich man as his herdsman, receiving as his wages cows which he uses to pay the price of a bride. All prices are reckoned in cows; for example, a male slave is valued at a bull and a cow, and a female slave at a cow and a calf.

Murder is rare in the tribe, for a murderer has little chance of escaping the avenger of blood. If, however, he contrives to elude pursuit, the kinsfolk of the murdered man may kill some other member of the murderer's clan in order to satisfy the ghost's thirst for vengeance. Men become blood brothers by swallowing a little of each other's blood, which has been drawn from near the navel and rubbed on two coffee beans.

The Bahima are not a warlike tribe, and desired nothing better than to be left in peace to attend to their beloved cattle. But sometimes they had to defend themselves against enemies, especially the Baganda, who made raids on their cattle; and sometimes the Bahima could not resist the temptation of raiding their neighbour's cattle, which was their only motive of aggression. While such a raid was in progress, the women whose husbands were engaged on it used to place milk pots before a sacred tree of the species called *kirikiti*; they smeared milk on the trunk of the tree and called on the god to keep their relations safe and prosper the expedition. In the afternoon they drank the milk by way of a solemn communion with the god, who was supposed to be helping the absent warriors. If an insect was seen to climb the trunk of the tree, it was deemed an omen of battle and the women redoubled their prayers for victory. Women whose husbands were at the war were most careful to observe strict chastity during the absence of the warriors. The dead in war were not mutilated, but prisoners were taken to the king and their ears were cut off in token that they were slaves captured in battle.

When the king died after drinking the poison, his spirit was believed to be born again as a young lion in the forest: a priest used to bring back a lion cub from the forest and exhibit it as the king reborn. The king's mother was also compelled to poison herself when she contracted a serious illness, and her spirit was believed to enter a leopard and remain in that form alive in the forest. The bodies of the king and his mother are buried with little ceremony; they are apparently thought to be of no account after the transmigration of the spirit has taken place. Princes are buried in the royal forest and are believed to turn into pythons.

The sickness of ordinary people is variously ascribed to evil magic, ghosts, and natural causes. In the two former cases a medicine man is called in to detect and remove the evil magic and to exorcize the ghost who is causing the sickness. The dead are buried in the dung heap in the middle of the kraal; they are not interred in the earth. Milk is poured into the dead man's mouth before he is committed to this unsavoury resting place. Mourners shave their heads, cut their nails and

sleep on the ground near the fire, but not on beds. While the mourning lasts the kraal is not swept out, and the sacred fire in the centre is extinct. The first duty of the heir is to rekindle this sacred fire and to have the kraal cleaned. Before he may do so his sister has to perform a ceremony of purification by sprinkling him, the cows, and the vessels with a bunch of certain herbs dipped in water.

The religion of the Bahima is of a very undeveloped sort. A few gods are acknowledged, but they receive no worship or sacrifice, and no priests are assigned to them. The Creator is said to have made man and to have sent a relative of his own, "a kind of son," to the earth, who peopled the world. From him sprang two sets of people, a superior order consisting of the pastoral Bahima, and an inferior order, consisting of the agricultural peasants, who were created to be the slaves of the others. The first four or five kings of the Bahima became gods, and to them the people apply for help in time of need. The ghosts of the dead Bahima hover about the kraals and the pastures; and the ghosts of the agricultural peasants hover about their gardens and among the plantain trees. When the wind blows over the pastures, the ghosts may be felt but not seen. It is to ghosts rather than gods that the people look for protection and to whom they make the most regular offerings. Cows are offered to ghosts, and milk is daily set aside for them, being placed on a special stand in a particular place, where it is drunk by the head of the family and his children resident in the house. Ghosts have their shrines. In the king's court frequent offerings are made to the ghosts of dead kings in huts built for them. When the king is unwell and a diviner declares that a ghost is troubling him, a bull or cow is sacrificed to the angry ghost; the blood is spilled on the ground, and the flesh is eaten by the king and the members of the royal clan in the vicinity of the shrine. The bones may not be broken and must be consumed with fire.

The name of the Creator is Ruhanga, and that of his son is Isimbwa. After the creation Ruhanga returned to the sky, leaving his son as his deputy to carry on the affairs of the world. Lately some people have professed to be inspired by Nabinge, the god of earthquakes. Such a person will build a hut, in which from time to time he makes a noise like the rumbling of an earthquake, while at the same time he shakes the walls of the hut as though it were tumbling down. This frightens people, and they make offerings to avert the threatened calamity. A few fetishes are in use, the principal being horns, which the medicine-men have filled with magical ingredients after pronouncing incantations over them. Claws of animals are also employed into which the essence of a god is believed to have been conjured. Many specimens of native drugs used as medicines have been sent home for analysis.

From Ankole the Expedition moved early in January, 1920, to Kigezi. Here a short stay was made at Kabale. The people of the country are the Bakyiga, a large mountain tribe believed to number over a million and divided into many clans. The names of 48 clans were recorded by the Expedition; but the totems of only two or three could be ascertained on account of the difficulty the people have to penetrate into the country of other clans. A man cannot safely go alone more than half-a-mile from his home. The men go to their fields to dig in groups of four or five, and they always place their weapons so as to be within reach even when they are at work. The people are so fierce that they kill members of their own clan, and murders are constantly taking place, though they know that the penalty is death. The murderer, bound hand and foot, is buried alive in a grave with the body of his victim on the top of him. The tribe is believed to be the original stock whom the pastoral Bahima were never able to conquer because they lived in

the mountains. They are a Bantu people of the type of the slaves in Ankole and the lower order of people in Bunyoro. Their habits are semi-pastoral and they keep thousands of cattle, but they are quite distinct from the Bahima. In spite of their fierce character and savage independence, the Expedition found that large districts in Kigezi had been devastated by the pygmies, who had driven the otherwise unconquered Bakyiga from certain strongholds in the mountains. The Expedition tried to get into contact with these pygmies, the Batwa, as they are called, but they were too far away to the west in the depth of the Congo forest.

From Kigezi the Expedition set out for Bunyoro, where the next long halt is to be made to investigate the important Banyoro people. But instead of retracing its steps to Kampala and then journeying northward by the usual road to Bunyoro, the Expedition struck out a new route by moving westward to the ferry or arm which connects the two lakes Edward and George, and then turned northwards, following the line of these lakes and Lake Albert. Some of the scenery in the little known country between Kabale and the ferry between Lakes Edward and George was found to be beautiful beyond description, comprising crater lakes surrounded by tropical vegetation of wonderful luxuriance. The people, cut off from the world, live happily in ignorance of their fellows a few miles distant. In this African Arcadia, before descending the escarpment to the great lakes, the Expedition met the Bakunta, the descendants of a few Baganda who many years ago killed a prince in battle and fled their country to escape the avengers of blood. Crossing into Toro the Expedition visited the famous salt-pans at Kasenya and secured specimens of the salt. After resting for a week at Fort Fortal and making a superficial examination of the Bamba and Bakonja tribes of Mount Luenzori, the Expedition followed the northern route to Lake Albert and descended the escarpment some two thousand five hundred feet into the hot plain of the lake. From Port Ntoroko a paddle steamer (the "Samuel Baker") conveyed the Expedition nearly a hundred miles to Butiaba, the port for Masindi; and the Belgian motor lorry brought on the members of the Expedition to Masindi, the capital of Bunyoro. The journey from Mbarara, the capital of Ankole, to Masindi is roughly four hundred miles; most of it was performed on foot and sometimes under trying circumstances on account of the great heat and the difficulty of finding water. In some places the grass had been burnt, the air was charged with particles of cinders, the ground was blackened for miles, and after eight in the morning it grew too hot to allow the bare hand to rest on it. Indeed in one place the path was so hot that the bearers actually lay down and cried. After that experience Mr. Roscoe made it a rule that the Expedition should rise soon after three in the morning, start soon after four, and reach camp for the day at ten. This involved walking by moonlight before the sun was up. However, Mr. Roscoe is satisfied that in spite of the difficulties encountered he did well to take this new route instead of returning on his footsteps from Ankole and taking the usual road by Kampala; for in this way new peoples have come under observation, and a general survey has been made for future use. In Masindi, where the Expedition arrived on February 26th, 1920, there is every prospect of useful work being done. The King of Bunyoro is looking out men who knew the old *régime* of Kabarega, and he promises to help in person with information. It is thought that two or three months will be required to complete the investigation of the Banyoro. After that the Expedition will cross the Nile and begin the investigation of the Nilotic tribes.

JAMES G. FRAZER.

REVIEW.

Africa: Archæology.

Le Sahara Occidental. By Capt. Augiéras. Soc. de Géog., Paris: Masson, 5 fr. 49

This valuable account of explorations in the W. Sahara includes some interesting statements about earlier epochs of human history. There is abundant evidence of a quaternary river system rising in the Atlas and feeding the Niger near Timbuctoo. The old valley is full of sand (*Erg*), which, with the disappearance of vegetation, has been left at the mercy of the wind, and as a result there have been created dunes with wave form and comparatively clear intermediate lines that form ever-varying tracks for the few nomads. The surface is littered with ostrich eggs, though only a few ostriches survive, and many eggs are clearly bored, and some have evidently been worked into ornaments. Stone implements of unknown date are very numerous. Some are more or less Achenian in type, but the great majority show fine chipping and a large number are very small indeed, thus suggesting comparisons with the very small implements found here and there above beaches, &c. in W. Britain. Fairly good baked pottery of a simple kind was seen, and a few rock drawings were found on the Hammada (rocky plateau), but the latter are not nearly so common as in the Algerian Sahara. The drawings are of animals, but no representation of the camel is found, and Augiéras estimates that the latter was introduced by man about 1,500 years ago. A few cairns were found, and one yielded a dolichocephalic skull without marked prognathism and with an open facial angle, but it crumbled before it could be preserved for study. A few supposed megaliths were noted west of the erg Iguidi, but these need further study. A fine map accompanies the monograph.

H. J. F.

ANTHROPOLOGICAL NOTE.

ACCESSIONS TO THE LIBRARY OF THE ROYAL ANTHROPOLOGICAL INSTITUTE.

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(Donor indicated in parentheses.)

Africa and the Discovery of America. Vol. I. By Leo Wiener. $8\frac{3}{4} \times 6$. 290 pp., illustrated. Innes & Sons. (The Publishers.)

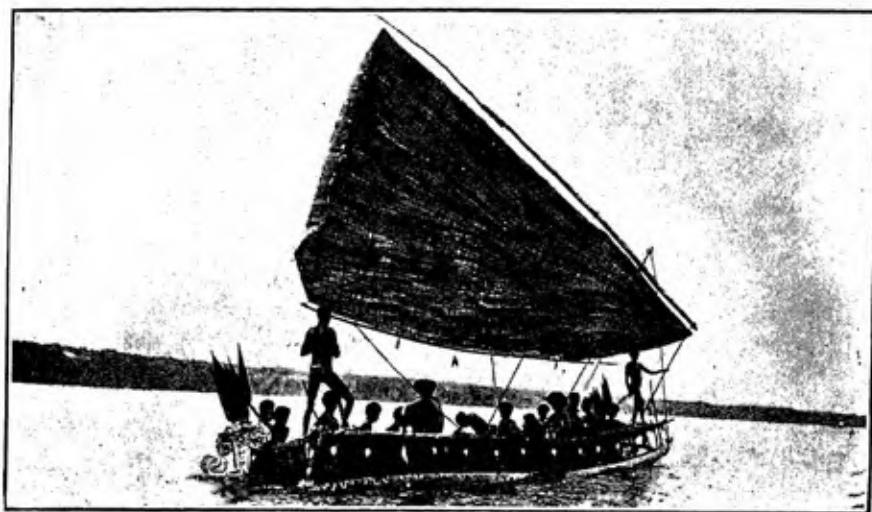
Contributions à l'Etude de la Vie Vertébrée Insulaire dans la Région Méditerranéenne Occidentale et particulièrement en Sardaigne et en Corse. By E. G. Dehaut. $10 \times 6\frac{1}{2}$. 93 pp., 3 plates, 2 in colour, and 27 figures in the text. Paul Lechevalier. 15 fr. (The Author.)

A Guide to the Observatories at Delhi, Jaipur, Ujjain, Benares. By G. R. Kaye. $8\frac{1}{2} \times 5\frac{1}{2}$. 97 pp., 15 plates. Government Printing, India. 3s. 6d. (The Superintendent.)

Totem and Taboo. By Professor Sigmund Freud. $8\frac{3}{4} \times 5\frac{1}{2}$. 268 pp. George Routledge & Sons, Ltd. (Miss M. E. Durham.)

Seri Indians. By W. J. McGee. $12 \times 8\frac{1}{2}$. 344 pp., 56 plates. 42 figures in text. Bureau of Ethnology. (Dr. A. P. Maudslay.)

Psychology and Folklore. By R. R. Marett, M.A., D.Sc. $8 \times 5\frac{1}{2}$. 272 pp. Methuen & Co., Ltd. 7s. 6d. net. (The Publishers.)



A SEA-GOING *KULA* CANOE UNDER SAIL.



AN EPISODE IN THE INLAND *KULA*: OFFERING A NECKLACE (*SOULAVA*) TO A CHIEF.

KULA; THE CIRCULATING EXCHANGE OF VALUABLES IN THE
ARCHIPELAGOES OF EASTERN NEW GUINEA.

ORIGINAL ARTICLES.

With Plate G.

New Guinea: Ethnography.

Malinowski.

Kula; the Circulating Exchange of Valuables in the Archipelagoes of Eastern New Guinea.* By B. Malinowski.

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In this article is described a special system of trade, obtaining over a widespread area, and possessing several features remarkable in their bearing upon questions of primitive economics, as well as throwing some new light on native mentality.

The distant and perilous trading expeditions of the South Sea islanders are a well-known feature of their tribal life. We possess especially good descriptions of such voyages in Dr. Seligman's *Melanesians*. In that book, the *Hiri*, the seasonal voyage of the Motu to the Gulf of Papua, is treated in a brilliant monograph by Captain Barton, and Dr. Seligman himself gives an excellent analysis of the trading routes between the various islands of the East End of New Guinea.†

All these trading systems are based upon the exchange of indispensable or highly useful utilities, such as pottery, sago, canoes, dried fish and yams, the food being sometimes imported into islands or districts which are too small or too infertile to be self-supporting. The trading system, however, which will be described in this paper, differs in this and many other respects from the usual Oceanic forms of exchange. It is based primarily upon the circulation of two articles of high value, but of no real use,—these are armshells made of the *Conus millepunctatus*, and necklets of red shell-discs, both intended for ornaments, but hardly ever used, even for this purpose. These two articles travel, in a manner to be described later in detail, on a circular route which covers many miles and extends over many islands. On this circuit, the necklaces travel in the direction of the clock hands and the armshells in the opposite direction. Both articles never stop for any length of time in the hands of any owner; they constantly move, constantly meeting and being exchanged.

This trading system, the *Kula*, embraces, with its ramifications, not only the islands off the East End of New Guinea, but also the Lousiades, Woodlark Island, the Loughlans, the Trobriand Archipelago and the d'Entrecasteaux Group. It touches the continent of New Guinea and extends its indirect influence over several outlying districts, such as Sud-Est Island, Rossell Island, and stretches of the northern and southern coast of the mainland.

A glance at the map will show the enormous geographical extent of the trading system, and the statement may here be anticipated that the *Kula* looms paramount in the tribal life of all the peoples, who participate in it. These peoples belong to that branch of the Papuo-Melanesians whom Dr. Seligman calls the Massim, and whom he has characterised in the above-mentioned work.‡ Some of them, living on big islands, have a very highly-developed agriculture, and they harvest each year a crop amply sufficient for their needs and with a good deal to spare. Such are the natives of Woodlark Islands, of the Trobriands, of the d'Entrecasteaux Group. Others, again, who live on very small islands, like the volcanic Amphlett Rocks, Wari (Teste Island), Tubetube (Engineer Group), and some of the Marshall Bennett Islands, are not self-supporting as far as food goes. They are, on the other hand, specialised in certain industries, notably pottery and canoe-building, and they are monopolists in intermediary trade. Thus it is evident that exchange of goods

* Some results of the Robert Mond Ethnological Research work in British New Guinea.

† C. G. Seligman, *The Melanesians of British New Guinea*, Chaps. VIII. and XI. For the trading system of the Mailu, a tribe living midway between Port Moresby and the East End of New Guinea, see B. Malinowski, "Mailu," in Proc. R. Soc. of S. Austr., 1915.

‡ *Op. cit.*, Introduction and Chapters XXXIII-LV.

had to obtain between them. The important point about it, however, is that with them, and notably according to their own ideas, the exchange of utilities is a subsidiary trade, carried on as an incident in the *Kula*.

The *Kula* has been called above "a form of trade." The usual a priori notion of savage trade would be that of an exchange of indispensable, or, at least, useful



ARM SHELLS CEREMONIALLY BROUGHT INTO OMARAKANA VILLAGE FROM A SMALL EXPEDITION TO KITAVA.

things, done under pressure of need by direct barter, or casual give and take of presents, without much ceremony and regulation. Such a conception would almost reverse all the essential features of the *Kula*. Thus, first, the objects of exchange—the armshells and strings of shell-discs—are not "utilities" in any sense of the word; as said above, they are hardly ever used as ornaments, for which purpose they could serve. Nevertheless, they are extremely highly valued; nowadays a native will give up to £20 for a good article, and in olden days their value was an equivalent of this sum, if we take as a common measure such utilities as basketfuls of yams, pigs and other such commodities. Secondly, the exchange, far from being casual or surreptitious, is carried on according to very definite and very complex rules. Thus it cannot be performed between members of these tribes taken at random. A firm and lifelong relationship is always established between any participant in the *Kula*, and a number of other men, some of whom belong to his own community, and others to oversea communities. Such men call one another *karayta'u* ("partner," as we shall designate them), and they are under mutual obligations to trade with each other, to offer protection, hospitality and assistance whenever needed.*

Let us imagine that we look at the whole system from one definite point, choosing the large village of Sinaketa in the Trobriand Islands. An old chief in that village would have, say, some hundred partners southwards, and about as many again to the north and east, while a young commoner would have only a few on both sides. It must be remembered that not all men in a village take part in the *Kula*, and some villages are out of it altogether.

Now another definite rule is that the armshells must always be traded to the

* *Karayta'u* is the word for "partner" in the language of Kiriwina, in the Trobriand Islands. All the terminology in this paper will be given in the language of the Trobriands, from which district the *Kula* has been studied.

south, and the necklets of shell-beads to the north. The word "traded" is, of course, only a rough approximation. Let us suppose that I, a Sinaketa man, am in possession of a pair of big armshells. An oversea expedition from Dobi in the d'Entrecasteaux Archipelago, arrives at my village. Blowing a conch shell, I take my armshell pair and I offer it to my overseas partner, with some such words, "This " is a *vaga* (initial gift)—in due time, thou returnest to me a big *soulava* (necklace) " for it!" Next year, when I visit my partner's village, he either is in possession of an *equivalent* necklace, and this he gives to me as *yotile* (restoration gift), or he has not a necklace good enough to repay my last gift. In this case he will give me a smaller necklace—avowedly not equivalent to my gift—and will give it to me as *basi* (intermediary gift). This means that the main gift has to be repaid on a future occasion and the *basi* is given in token of good faith—but it, in turn, must be repaid by me in the meantime by a gift of small armshells. The final gift, which will be given to me to clinch the whole transaction, would be then called *kudu* (equivalent gift) in contrast to *basi*.

This does not exhaust the subtleties and distinctions of *Kula* gifts. If I, an inhabitant of Sinaketa, happen to be in possession of a pair of armshells more than usually good, the fame of it spreads. It must be noted that each one of the first-class armshells and necklaces has a personal name and a history of its own, and as they all circulate around the big ring of the *Kula*, they are all well known, and their appearance in a given district always creates a sensation. Now all my partners—whether from overseas or from within the district—compete for the favour of receiving this particular article of mine, and those who are specially keen try to obtain it by giving me *pokala* (offerings) and *kaributu* (solicitory gifts). The former (*pokala*) consists, as a rule, of pigs—especially fine bananas and yams or taro; the latter (*kaributu*) are of greater value: the valuable "ceremonial" axe-blades (called *beku*) or lime-spoons of whale's bone are given. There are further



LOADING LARGE CLAYPOTS IN THE AMPHLETT ISLANDS, IN CONNECTION WITH
THE KULA.

complications as to the repayment of these solicitory gifts, into which we cannot enter here, and the *termini technici* of the transactions are by no means exhausted by the words so far given.

But this is sufficient to make clear that the *Kula* involves a complicated system

of gifts and counter-gifts, in which the social side (partnership), as well as the rules of give and take, are definitely established and regulated by custom. It must also be emphasized that all these natives, and more especially the Trobrianders, have both a word for, and a clear idea of, barter (*gimwali*), and that they are fully aware of the difference between the transactions at the *Kula* and common barter. The *Kula* involves the elements of trust and of a sort of commercial honour, as the equivalence between gift and counter-gift cannot be strictly enforced. As in many other native transactions, the main corrective force is supplied by the deeply engrained idea that liberality is the most important and the most honourable virtue, whereas meanness brings shame and opprobrium upon the miser. This, of course, does not completely exclude many squabbles, deep resentments and even feuds over real or imaginary grievances in the *Kula* exchange.

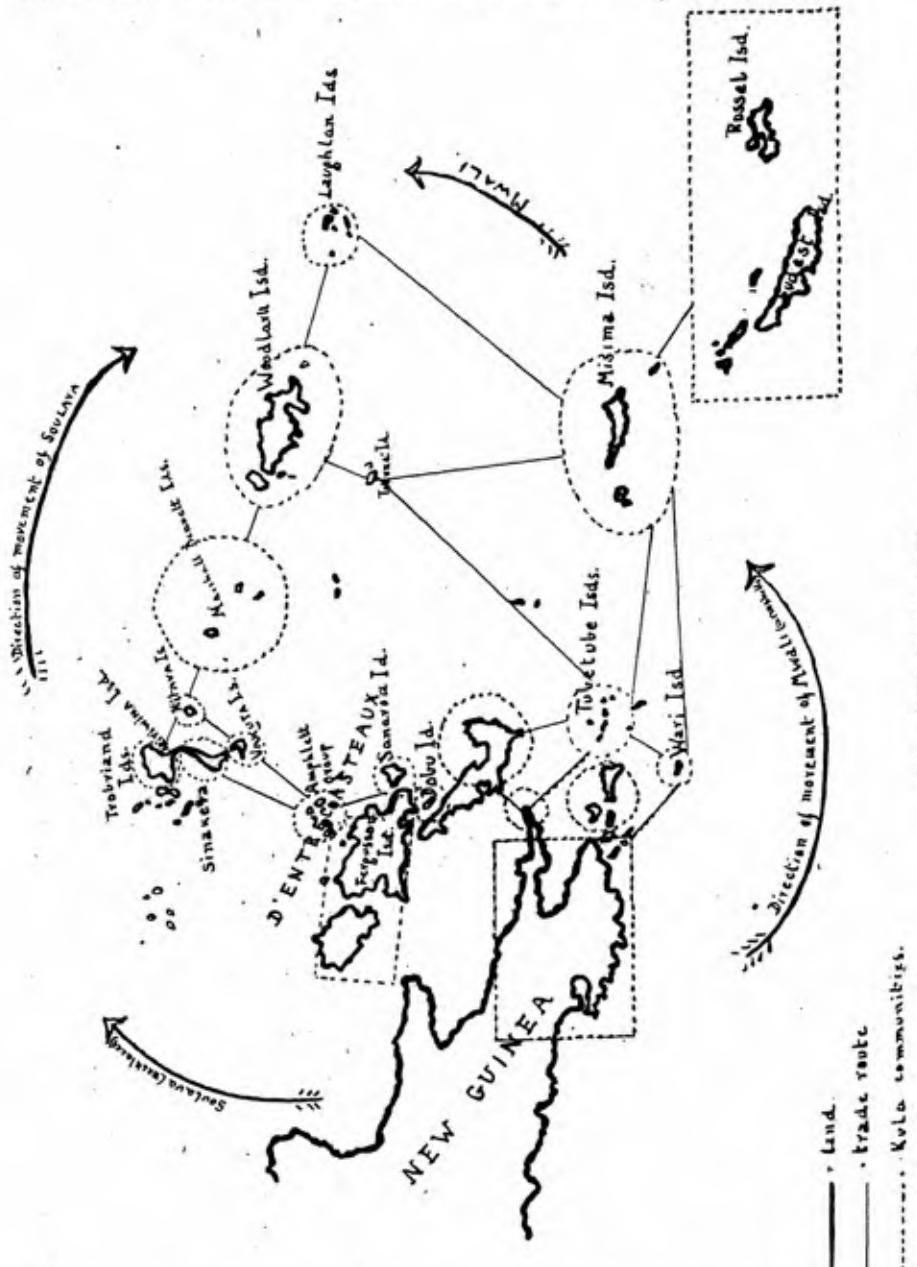
As said already, the armshells and shell-strings always travel in their own respective directions on the ring, and they are never, under any circumstances, traded back in the wrong direction. Also they never stop. It seems almost incredible at first, but it is the fact, nevertheless, that no one ever keeps any of the *Kula* valuables for any length of time. Indeed, in the whole of the Trobriands there are perhaps only one or two specially fine armshells and shell necklaces permanently owned as heirlooms, and these are set apart as a special class, and are once and for all out of the *Kula*. "Ownership," therefore, in *Kula* is quite a special economic relation. A man who is in the *Kula* never keeps any article for longer than, say, a year or two. Even this exposes him to the reproach of being niggardly, and certain districts have the bad reputation of being "slow" and "hard" in the *Kula*. On the other hand, each man has an enormous number of articles passing through his hands during his lifetime, of which he enjoys a temporary possession, and which he keeps in trust for a time. This possession hardly ever makes him use the articles, and he remains under the obligation soon again to hand them on to one of his partners. But the temporary ownership allows him to draw a great deal of renown, to exhibit his article, to tell how he obtained it and to plan to whom he is going to give it. And all this forms one of the favourite subjects of tribal conversation and gossip, in which the feats and the glory in *Kula* of chiefs or commoners are constantly discussed and rediscussed.

But the tradition of the *Kula* is not limited to the recounting of recent or historical exploits. There is a rich mythology of the *Kula*, in which stories are told about far-off times when mythical ancestors sailed on distant and daring expeditions. Owing to their magical knowledge—how they came to it no one knows distinctly—they were able to escape dangers, to conquer their enemies, to surmount obstacles, and by their feats they established many a precedent which is now closely followed by tribal custom. But their importance for their descendants lies mainly in the fact that they handed on their magic, and this made the *Kula* possible for the following generation.

The belief in the efficiency of magic dominates the *Kula*, as it does ever so many other tribal activities of the natives. Magical rites must be performed over the sea-going canoe, when it is built, in order to make it swift, steady and safe; also magic is done over a canoe to make it lucky in the *Kula*. Another system of magical rites is done in order to avert the dangers of sailing. The third system of magic connected with overseas expeditions is the *muasila* or the *Kula* magic proper. This system consists in numerous rites and spells, all of which act directly on the mind (*nanola*) of one's partner and make him soft, somewhat unsteady in mind, and eager to give *Kula* gifts.

In order to form a better idea of how the magic is woven into the many practical activities incidental to the *Kula*, it will be necessary to give a concrete

outline of a trading expedition, and thus to supplement the set of rules and features enumerated above somewhat *in abstracto*. It will be best again to adopt a definite starting-point in our geographical orientation and to imagine ourselves again in Sinaketa, one of the main industrial and trading centres of the Trobriands.



SKETCH MAP OF KULA. The dotted circles represent the *Kula* communities, showing the area, trade routes and communities of the circular exchange. The dotted squares represent the districts indirectly affected by the *Kula*.

Glancing at the map we see a number of circles, each of which represents a certain sociological unit which we shall call a *Kula* community. A *Kula* community consists of a village or a number of villages, who go out together on big overseas expeditions and who act as a body in the *Kula* transactions—perform their magic in common,

have common leaders, and have the same outer and inner social sphere, within which they exchange their valuables. The *Kula* consists, therefore, first of the small, inner trade within a *Kula* community or contiguous communities, and secondly of the big overseas expeditions in which the annual exchange of articles takes place between two communities, divided by sea. In the first, there is a chronic, permanent trickling of articles from one village to another, and even within the village. In the second a whole lot of valuables, amounting to over a thousand articles at a time, are exchanged in one enormous transaction, or, more correctly in ever so many transactions taking place simultaneously.

I will describe the normal and typical course of such a big overseas expedition as it takes place between the *Kula* community of Sinaketa with its surrounding villages and the Amphlett Group and Dobi districts to the south. Such an expedition would take place about once a year, but only every second or third year would it be carried out on a really big scale. On such occasions big preparations take place. First of all the large seagoing canoes must be made ready. As a rule a few new ones have to be built to replace those worn out and unseaworthy, and then those in good order have to be overhauled and redecorated. The building of a canoe, which cannot be described in this place in detail, is a big tribal affair. A series of magical rites have to be performed by a specialist or specialists, who are versed in the art of constructing and carving—the magic being considered indispensable to both arts. The magical rites aim successively at the expulsion of a wood spirit (*tokway*) from the tree to be felled; at the imparting of stability, swiftness and good luck to the canoe, and at the counteracting of evil influences cast on the canoe by direct sorcery or by the unwitting breaking of taboos. The rites—some performed in a simple manner by a magician alone, some ceremonially with the attendance of the whole community—are carried out in a series, associated with the various activities, inaugurating some, accompanying others. The magic is always interwoven with the technical operations and is to the native mind absolutely indispensable to the successful accomplishment of the task. Another important feature of canoe-building is the communal labour, which is always used at certain stages and for certain tasks, as for sail-making, the piecing together and lashing, caulking and painting of the canoe. The owner of the canoe has to pay for the work by gifts of *vayga'a* (valuables) and distribution of food, and the expert magician-constructor directs the work.

The building and overhauling of canoes lasts for about six months, for it is done slowly in the intervals of other work. As the expeditions take place usually in February–April, the canoe work begins some time in August or September. When all the canoes are ready, there is a big gathering from the whole district, and the canoes are launched ceremonially, and races and general festivities take place. Some days later all the canoes start on a preliminary trip to the neighbouring districts, that is, in the case of Sinaketa, to the northern half of the island, to Kiriwina proper. There is a custom, called *kabigidoya*, of ceremonially presenting a canoe, and the owner receives gifts, which form part of the subsidiary trade, to be used on the big expedition. More subsidiary trade is obtained by barter (*gimwali*), especially from the manufacturing districts on the north shore of the lagoon. Wooden combs, fibre armlets, baskets, mussel shells and other articles, abundant here and rare in the Amphletts and in Dobi, are thus acquired in great quantities. On this preliminary trip the Sinaketans also obtain a number of armshells from Kiriwina by inland *Kula*, and with their wealth thus replenished return to Sinaketa.

A period of taboos and initial magic now obtains as the immediate preliminary to main departure. The owner of each canoe is subject to the most stringent

restrictions—mainly referring to sexual relations—and he also performs all the magic. On an evening he goes into a garden and uttering a spell he plucks a spray of aromatic mint, which he brings home. Then he prepares some cocoanut oil, anoints the mint with it, and, putting some oil and the mint into a vessel, he medicates it all with another spell. The vessel—in oiden days a contrivance of roasted and thus toughened banana leaves, now a small glass bottle—is then attached to the prow of the canoe. This magic aims at the softening of the Dobuan's mind, so that he may be unable to resist any appeal made to his generosity. This aim is explicitly stated by all natives, and an analysis of the magical spells reveals it also as their leading idea. But the magic is full of mythological allusions, of side ideas and of references to animals and birds, and it contains interesting metaphorical circumlocutions of the aims to be attained.

Other spells, all expressing more or less the same ideas, are used in the magical rite performed over a special bundle of valuables and goods, called *lilava*, which is placed in the centre of the canoe and must not be opened before the arrival in Dobu; also in the rite over the cocoanut leaves lining the canoe. Again, in the rite over the provisions of food taken on the journey, the main aim is to make it last long.

After the rites are finished and the expedition is ready, many people from the neighbouring villages assemble, the departing chiefs enjoin chastity to their wives and warn all the neighbouring male villagers to keep off Sinaketa, and prognosticate a speedy arrival with much *vaygu'a* (valuables). They are assured that they can depart in safety as no one will visit their village surreptitiously. Indeed, during their absence, the village should be kept tabooed, and if a man is found loitering about the place, especially at night, he is likely to be punished (by sorcery, as a rule) on the chief's return.

The fleet now sails south; but the first stage of the journey is short, as the natives halt on a sandbank some ten miles off Sinaketa, where they have a ceremonial distribution of food, which imposes an obligation on the *usagelu* (members of the crews) towards the *toliwaga* (owners of canoes) to carry out the expedition even in the face of contrary winds and bad weather. Next morning several rites are performed over the canoes to undo all evil magic and to make them swift and steady.

The open sea now lies before the fleet with the high, distant peaks of the d'Entrecasteaux mountains floating above the haze. In very clear weather the nearer Amphlettts can be seen—small steep rocks, scattered over the horizon, misty, but more material against the faint blue of the distant land. These far-off views must have inspired generation after generation of Kiriwian sailors with zest for adventure, wonder and desire to see the much-praised marvels of foreign lands, with awe and with superstitious fear. Mixed with it all—associated in the native mind with the allurement of the distant *koya* (mountains)—there was the ambition to return with plenty of *vaygu'a*. In myths, in traditional legends, in real stories and in songs, *Kula* expeditions were and are described and praised and there is a definite complex of *Kula* tradition and mythology, governed perhaps by two dominating emotions: the desire to obtain the *vaygu'a* and the dread of the dangers to be encountered.

These latter are real enough, as the wind in the N.W. season, when the expeditions take place, is changeable, and violent squalls obtain, and the sea is full of reefs and sandbanks. But the natives have added to that from their store of myth-making imagination, and have surrounded the real dangers with a fabric of imaginary perils and modes of escape. There exist for them big, live stones, lying in wait for a canoe—they jump up when they see one, and smash it to pieces and destroy the

sailors. There is a giant octopus, which will take hold of a canoe and never let it go, unless a sacrifice is made of a small boy, adorned and anointed, who is thrown overboard to the *kwita* (octopus). There may come a big rain, which smashes and submerges the canoe. But the greatest danger comes from flying witches, who, whenever they hear that a canoe is drowning—and they possess the capacity of hearing it at enormous distances—assemble and wait till the men are in the water, and then fall on them. There is a deep belief that shipwreck in itself would not be fatal—the men would float ashore, carried by the *débris* of the canoe—unless the flying witches were to attack them. A whole cycle of beliefs centres round this main idea, and there is a system of rites which are always practised in shipwreck, and which, if carried out properly, would ensure safety to those shipwrecked.

One part of this magic is directed towards the flying witches; it blinds and bewilders them and they cannot attack the men in the waves. Another part is chanted by the *toliwaga* (master of the canoe) whilst he and his companions are drifting, suspended on the float of the outrigger, and it attracts a giant fish (*iraveaka*). This beneficent animal arrives and pulls the float and the men ashore. This is not the end; the shipwrecked party have to go through a series of ceremonies intended to make them immune from the flying witches, and only after that may they return to their village. This interesting account of a potential shipwreck and the magical rites referring to it I have obtained from several sets of independent informants. There are also a few definite traditions about actual salvage from death by drowning, through the carrying out of the magic.

The normal expedition, however, sails in one day with good following wind, or in several days if the wind is weak or shifting, and arrives at its first stage, in the Amphletts. Some exchange is done here, as well as on the further two intermediate halts in Tewara and Sanaroa and the concomitant magic has to be performed here. There are also several mythologically famed spots in these islands: some rocks from which magic originated—how, the myths do not relate distinctly—and other rocks, formerly human beings, who travelled to their present sites from very far, and to whom the natives offer *pokala* (offerings in order to have a propitious *Kula*). The island of Gunasila in the Amphletts, that of Tewara, and places on Fergusson Island, are important mythological centres.

But the main aim of the expedition is the district of Dobu, more especially the north-east corner of Fergusson Island, where on the flat and fertile foreshore, among groves of cocoanut, betel-palms, mangoes and bread-fruit trees, there stretch for miles the populous settlements of Tautauna, Bwayowa, Deidei and Begasi.

Before approaching them, the whole fleet stops on a beach called *Sarubwoyna*, not far away from the two rocks, *Atu'a'ine* and *Aturamo'u*, which are the most important, perhaps, of the rocks to whom *pokala* offering is given. Here the final magic is performed. All the *usagelu* (members of the crew) go ashore and collect leaves for magic. Spells are pronounced over them by the members of each canoe and everyone washes with sea-water and dries his skin with the medicated leaves. Then spells are uttered over cocoanut oil, red paint and aromatic herbs—and the natives anoint and adorn themselves, the magic making them beautiful and irresistible. A spell is uttered into the mouth of a conchshell and the canoes get under way. The last distance, a few miles only, is traversed by paddling; and powerful spells are uttered by several men in each canoe, who recite them simultaneously, and the medicated conchshell is blown. These spells have to "shake the mountain"—that is, to produce a deep agitation in the minds of the Dobuans, and impress them with the arrival of the newcomers. One more important rite is uttered to prevent the Dobuans from becoming fierce and angry and to suppress any attempt at attacking the visitors.

Finally the party arrive, and it is the custom for the Dobuans to meet them with *soulava* (shell-disc necklaces) in their hands. The conchshells are blown and the necklaces are ceremonially offered by the Dobuans to the newcomers. Then the party go ashore, every man going to the house of his main partner. There the visitors receive gifts of food, and they again give some of their minor trade as *pari* (visitors' gifts) to the Dobuans. Then, during a several days' stay, many more *soulava* are given to the visitors. Often it is necessary for a Kiriwinian to woo his partner by gifts, solicitations and magical rites, transparently performed, if the latter possesses a specially good and desirable article. All the transactions are carried out according to the rules set forth above.

Side by side with the *Kula*, the subsidiary trade goes on, the visitors acquiring a great number of articles of minor value, but of great utility, some of them unprocurable in Kiriwina, as, for instance, rattan, fibre belts, cassowary feathers, certain kinds of spear wood, obsidian, red ochre and many other articles. This subsidiary trade is carried on by means of gifts and countergifts with one's own partners; by means of barter (*gimwali*) with other people; whereas certain articles are procured directly. Among the latter, the most important is the Spondylus shell, fished by Sinaketans in the lagoon of Sanaroa, again under the observance of many taboos, and with the aid of magic, private and collective, simple and ceremonial. The shell called *kaloma* is, on their return home, worked out into the red shell-discs, which serve for making the *Soulava* necklaces.

All the transactions in Dobu concluded, the party receive their parting gifts (*talo'i*) and sail back, doing the spondylus fishing just mentioned in Sanaroa, trading for pots with the Amphletts, and receiving additional *Kula* gifts and *talo'i* (parting gifts) in all the places, where they go ashore on their return journey.

In due time, after a year or so, the Dobuans will make their return expedition to Sinaketa, with exactly the same ceremonial, magic and sociology. On this expedition they will receive some armshells in exchange for the necklets previously given, and others, as advance gifts towards the next *Kula* transaction.

The *Kula* trade consists of a series of such periodical overseas expeditions, which link together the various island groups, and annually bring over big quantities of *vaygu'a* and of subsidiary trade from one district to another. The trade is used and used up, but the *vaygu'a*—the armshells and necklets—go round and round the ring.

We have here a very interesting form of tribal enterprises. In a sense they are *economic*, for the natives carry out their organised purposeful work under the stimulus of a desire for wealth, for ownership. The conception of value and the form of ownership revealed through the *Kula*, are different from those current among us, and this shows how necessary it is to apply a more detailed analysis to their economic ideas.

Again, the *Kula* presents a type of intertribal relationship of unprecedented magnitude, the standing partnership linking together thousands of people scattered over an immense area.

In this short preliminary account I have been able barely to touch upon the essentials of the *Kula*, and to give a summary account of one of its typical concrete manifestations—the expeditions from Sinaketa to Dobu. A more detailed and thorough description, which I trust will soon be forthcoming, will allow me to show many more of its important features.

B. MALINOWSKI.

Tahiti: Archæology.

Corney.

An Historic Stone Bowl. By B. Glanvill Corney, I.S.O.

52

The object represented in the illustration is *umete Tah*, a bowl or charger carved from a single block of hard, igneous rock, which was obtained at Tahiti in 1775, by a certain Máximo Rodríguez, a creole of Lima, and brought to that city in the frigate *Aguila*, of the Spanish Royal Navy. It was entrusted to Máximo by Tu,* for presentation to the King of Spain; but after delivery to the Viceroy, Don Manuel de Amat, at Lima, it got mislaid in the palace about the time of His Excellency's retirement in 1776, and was only recovered twelve years later by the same Máximo Rodríguez, from the private house of Don Jaime Palmer, a person who had been the aforesaid Viceroy's steward at the time when the bowl was received at the palace.



On the circumstances being made known to the later Viceroy, Don Teodoro de Croix, this officer showed a great interest in the matter and wrote a despatch (No. 92) to the Secretary of State, enclosing a Memorial from Máximo Rodríguez, and a fair copy of the latter's Tahitian diary, which were forwarded to Spain, together with the bowl, by the freight ship *El Dragón*. These events occurred in 1788; and the bowl was safely deposited in Madrid, where it has remained ever since, and may be seen, prominently displayed and in perfect preservation, in the ethnological section of the Museo Arqueológico, salon No. III, upstairs. The origin of this bowl, and the vicissitudes through which it has passed, are vouched for by State Papers filed in the *Archivo general de Indias* at Seville, where I sifted them out from a mass of Viceregal correspondence and transcribed them; but the official copy of Máximo Rodríguez' Diary in Tahiti in 1775 having gone astray, I have used a duplicate MS. of Máximo's original. The authenticity of this duplicate is vouched for by an inscription in the late Vice-Admiral Robert FitzRoy's handwriting on a fly-leaf attached by a wafer to the title-page, stating that the volume was given to him at Lima, in 1835, by the daughter of Máximo himself. Captain FitzRoy was at that time commanding H.M.S. *Beagle*, on board of which was Charles Darwin, serving as surgeon-naturalist. On his return to England, Captain

FitzRoy presented the MS. to the Royal Geographical Society, in whose library it has remained since 1838. A complete translation of this Diary and of the other documents in which references to the bowl occur has recently been published by

* O Tu, the "Otoo" of Captain Cook, supreme Chief of Tahiti and founder of the Pomare dynasty in that island.

the Hakluyt Society (Second Series, vol. 43); the present notice is therefore confined to a description of the bowl, and a brief consideration of its *raison d'être*, for anthropologist readers.

As may be seen in the illustration, the form of the bowl is scaphoid, broadly rounded at one extremity but tapering towards the other, where it terminates in a narrow groove or lip. The dimensions are: Length, 3 ft. 10 ins.; greatest width, 1 ft. 10½ ins.; greatest depth, 4 ins.; height, over all, 11½ ins. The greatest width is found about the junction of the posterior two-fifths of the length with the anterior three-fifths; and the greatest depth of the concavity occurs beneath the point of intersection of the long and greatest transverse diameters. The thickness of the floor where it corresponds to the area of greatest depth appears to be 3½ inches, measured without callipers; but this diminishes gradually towards the brim, where it hardly exceeds one inch. The concavity is perfectly smooth, indeed polished; it slopes gently and symmetrically downwards and inwards from a sharply-defined shoulder or ridge at the brim, and gives to the eye an impression of very accurate and beautiful modelling.

The bowl is supported by four short legs or feet which are part and parcel of the single block of stone out of which the entire object is sculptured. These legs have the form of truncated cones, standing on their bases. Their shoulders merge quickly into the under-surface of the bowl's floor, at a height of some four-and-a-half inches in each case. Their position and relation to the rest of the chattel are sufficiently shown in the illustration, which is reproduced from a negative executed in the writer's presence by M. Lacoste, of Madrid, for the Hakluyt Society. But it may be added that the central space between the four supports corresponds practically with the area of greatest depth in the concavity, and with the point of intersection of the long and transverse diameters already referred to.

Macroscopically examined, the material out of which this bowl is fashioned closely resembles the hard, compact, black stone of which the adze-blades and *penu* (pestles for mashing *taro* and bread-fruit) of the Society Islanders were formed, and which was quarried only at the remote island called Maurua. A specimen slice from one of these has been reported on by a geological expert as a hard, fine-grained, black dolerite. To the uninitiated it looks like something between a basalt and a lava; it is of a deep slate-grey colour, and was always alluded to by Máximo as *piedra negra*. Tapped smartly with the knuckle the bowl rings like phonolite. It is of such weight that two men can only just lift it a few inches, and four were required for its removal from a pedestal to an adjoining table, to be photographed. Yet so nicely is it poised upon the supports that it can be tipped, sufficiently to pour out through the lip any liquid that might be in the concavity, by the pressure of two fingers under the broad end. We have categorical evidence in Máximo's diary that this bowl was sculptured out of the Maurua stone; for he writes that it "was "constructed in the island of Maurua and presented to the Chief* of Rayatea " [Ra'i-atea], whence, on account of its singular workmanship, it was sent over to " the aforesaid *arii*, O Tu, as a handsome present. O Tu evidently regarded it in the same light and deemed it a very precious object, for it was only after repeated solicitation from Máximo, whom Tu had adopted as a *hoa*, or brother, that the Chief consented to part with it, and then only on the specific understanding that it was for the King of Spain's personal acceptance.

The wonder that this bowl excites in the European's mind arises from the assumption that it was "wrought by men," as the Viceroy de Croix observed, "who have no knowledge of iron and no tools adapted for carving such an object."

* The renowned Chief and warrior O Puni, of Borabora, and suzerain lord of Ra'i-atea.

No circumstance has come to light by which the date of its production can be fixed; but Sir Joseph Banks has recorded the existence of just such a bowl, only somewhat smaller, at Opoa, near the south end of Ra'i-atea, which he and Dr. Solander saw and measured on the 22nd of July, 1769, only two years after Wallis's discovery of Tahiti. "It was," wrote Banks, "carved out of hard black stone such as their 'hatchets are made of; it was 2 feet 7 inches long and 1 foot 4 inches broad, 'very thick and substantial, and supported by four short feet, the whole neatly 'finished and perfectly polished, though quite without ornaments."* In this description we see the exact counterpart of Máximo's *batea de piedra negra*, or bowl of black stone; and it is worthy of note that, though the latter was of considerably larger size, the dimensions of length and maximum breadth bore practically the same ratio to each other in both specimens, namely 2 : 1, the width working out .51 of the length in Banks's bowl, and .49 in Máximo's. We know, too, that *penu* of the same stone, many examples of which exist in the islands still, and in museums, and of whose pattern accurate drawings were made by members of Cook's staff, could only be produced by skillful carving. Yet these *penu* were undoubtedly in common use from time immemorial. It seems fair to suppose that the chisels and rasps or other tools employed by the native artists in carving the bowls were of the same kind and material as those they used for producing the *penu*, whatever that material may have been. The possibility of metal tools having reached the Society Islands before Wallis's time is discussed at p. xxxv of the above-mentioned Hakluyt Society's volume (43); but no positive conclusion has been reached on the point.

The purpose for which this stone bowl was designed is another matter that remains open to question. One can hardly conceive that so formidable a task as its production would have been attempted out of mere freak. Some clue is obtained when one examines the form of the bowl and realizes that it is modelled on the pattern of the South Sea Island bottle gourd or *hue*, one of the many varieties of *Lagenaria vulgaris* (Ser.), whose pericarp, when bisected longitudinally, serves the natives as a food bowl or finger bowl to this day. The groove and lip at the pointed extremity of Máximo's bowl represent the attachment of the stalk; and the circumstance that the utensil is quite plain and smooth, without ornamentation or adventitious relief carving of any kind, bears witness to the truth with which the artist, as is the wont in Polynesian design, copied from nature.

Banks calls the bowl he saw at Opoa "a trough for making *poe-poe*, or sour paste"† (*poi*, or mashed *taro*); but he does not say it contained any. Ellis, the missionary, writing in 1818, stated that "The *umetes* in ordinary use were oval, "about 2 or 3 feet long, 18 inches wide, and of varied depth. They are supported "by four feet cut out of the same piece of wood, and serve not only for the "preparation of their food, but as dishes upon which it is placed when taken from "the oven."‡ Ellis nowhere alludes to any *umete* of stone. Captain Kotzebue, who visited Tahiti in 1824, mentions "viands in utensils made of various kinds of "gourds."§

It seems unlikely that stone bowls would be made, in the circumstances, for the preparation of *poi* only; nor is it likely that any vessel intended for this use would be designed with four comparatively slender supports. In point of fact, the mortar or vessel for pounding *poi* in was the *papahia*, of quite a different form. The ex-queen-consort, Madame Marau, has suggested that stone bowls were probably

* MS. *Journal*; and the printed edition, p. 117.

† *Journal*, p. 117.

‡ *Polynesian Researches*, Vol. I, p. 190, 1853 edition.

§ Otto von Kotzebue: *New Voyage Round the World*, Vol. I, p. 181. London, 1830.

intended to receive liquids that were to be heated. This was effected by immersing hot stones in them; and at Ra'i-atea the late F. Debelle Bennett noticed that "hot stones were put into medicine bowls for heating the water when warm infusions were desired."* The principal Chiefs of Tahiti, Ra'i-atea and Borabora, on receiving my account of Máximo's bowl, with a photograph, and particulars of its origin and history, were practically unanimous in expressing an opinion that it was an *umete raa moa*, a sacred potion bowl, in which herbal draughts were prepared by trituration and infusion by the *tahu'a*, or medico-sacerdotal functionaries; and that when this was done in the *marae TAPUTAPUATEA* at Punaauia, where this particular bowl was reverently kept, the medicaments prepared in it derived a very special and mystic efficacy. The *marae* in question was, in fact, one of the most sacred in Tahiti; it was dedicated to the god Oro, and the victim of every human sacrifice, no matter in what district of the island he had been killed, was invariably deposited in the charnel yard attached to it, where Máximo noticed "a number of skulls and human bones set out in regular order" which the *tahua* explained to him were those "of persons who had been sacrificed."† This bowl may also have served for the ceremonial preparation of the *ava* libation on occasions of special importance.

Finally, Mr. J. Lyle Young, whose experience in the islands and study of native customs and archaeology invests his opinion with particular weight, has suggested that one, if not the only, function of this rare bowl was to receive the viscera of victims sacrificed, and has quoted a legend he heard long ago at Huabine in support of this view. It is well known that the *tahu'a* in those islands were accustomed to look for augury by inspection of the entrails of sacrificial victims, usually pigs. Captain Cook was once a witness of this; but whether the practice was ever applied in the cases of human bodies does not appear to be on record. The point is one of considerable interest in relation to the well-known ancient custom of construing augury by similar methods in Europe and other countries remote from Polynesia.

In conclusion, it is worthy of remark that "a large stone bowl" was one of the vestiges of bygone inhabitants found at Pitcairn Island, but no description of it has been preserved.

B. GLANVILL CORNEY.

Nigeria: Art.

Note on an Object from Benin. By N. W. Thomas.

53

In General Pitt-Rivers' *Antique Works of Art* are figured (Pl. XXXIV, Figs. 258-60; XLIII, 333-5) carved wooden blocks, which are described as "execution blocks," on what authority does not appear. One of the blocks rests upon a stand, the other has none.

The account of these "gruesome objects" tells us that the victim put his head on the upright spike, five inches long, and his thumbs in the holes formed by two carved cat-fish on the top of the block.

This block is not mentioned in any of the records of human sacrifice so far as I know; but we are told that the victims kneeled in some cases, in others that they lay flat (?) on their faces. There is, therefore, no support for the theory in the literature.

In point of fact there can be little doubt that the object figured is the *aluobø*, shrine of the hand, of which there is an example in the Cambridge Museum, No. 81, of my collection. I have not at present access to my notes, but I am certain that there was no question on human sacrifice; the hand appears to have been taken, as on the Gold Coast, as representing the *ehi*, genius or soul; it was possible to take the big toe of the right foot as a surrogate for the recipient of a sacrifice

* *Narrative of a Whaling Voyage*. London, 1840.

† Máximo's *Diary*, p. 172.

when the sacrificer was away from home; I think it represented Osun, also a personal tutelary deity.

The block is made of bombax wood, exceedingly soft, as a rule, and it would not survive a single execution, much less show signs of wear from much service as is alleged. The spike is for the sacrificer to grasp in his hand, and, at a guess, I should say that the holes in the cat-fish are for offerings of kola nut.

The mere fact that one of the blocks stands upon a loose lower portion is sufficient evidence, if it be needed, that there could be no question of its use as a block.

I hope to publish an illustration of the specimen I collected, with a description of the carvings and their meaning, as soon as I can get at my notes. N. W. THOMAS.

Malta: Geology.

Fenton.

Maltese Cart Ruts. By E. G. Fenton.

54

In MAN, 1918, 40, you published a paper which I wrote on the Maltese cart ruts. In that paper I tried to show that these ruts were of very considerable

antiquity, dating at least from the early Middle Ages if not from Roman times, and that they were not produced in the usual way by horses walking between shafts nor by two horses walking on either side of a pole. In the June number following, Professor Boyd Dawkins stated that these "cart ruts" are merely the ordinary joints, widened and eroded by rainwater, &c. . . . that they will probably be found to run in two principal directions . . . and that they have no



FIG. 1.—CART RUTS AT SAN PAUL, TAT-TARG'A.

archaeological significance. In the August number I replied as best I could, but being in France I was unable to get additional facts to put forward in support of my claim. I have recently corresponded again with Professor Zammit on the subject, and he very kindly sent me several photographs, two of which I enclose. No. 1 of these will, I think, completely dispose of the theory that these ruts are only the normal joints opened by water action. No. 2 will support my claim that in places the rock between and at the sides is so hummocky and rough that no four-footed animal could maintain a footing when drawing a load, and will lend weight to my suggestion that at the time these ruts were cut the climate of Malta was more moist than it is at present, and that what is now bare rock was then covered with a soft soil.



FIG. 2.—CART RUTS AT PELLIGRIN, WEST COAST OF MALTA.

In conclusion, I beg to add that Dr. Zammit informs me that he is now engaged on a work in which he is dealing more thoroughly with the same subject and that he hopes to have it ready for publication at an early date. In this he hopes to show that the Maltese cart ruts are decidedly pre-Roman.

E. G. FENTON.

REVIEWS.

Basevi.

Ethnography.

The Burial of the Dead. By W. H. F. Basevi. London : George Routledge & Sons, Limited, 1920.

55

Mr. Basevi's thesis is ingenious. "The seed," he says, "from which this volume sprang was a short article suggesting that the custom of placing funeral offerings in graves originated in some remote period when graves were not receptacles for the dead, but refuges for the living." Starting from Lyell's description of a palaeolithic grave at Aurignac, he suggests that the original tenants were not the dead, but wounded hunters or fighters, temporarily left there by their comrades on the way home, with necessaries pending their recovery from their wounds. In subsequent chapters he supposes that in early migrations the weak, the infirm, and the sick had to be left behind, or to be sent back to their previous habitat and friends, as unable to endure the hardships of a colonist's life : hence the traditions of the journey of the soul after death. He notes that the land of the dead was often conceived as situated in the direction from which the people had been believed to have come into their present seats, and that the corpses were oriented in the grave by reference to it. And he contends that the dead are buried because they lived underground in holes or caverns, or at least hid their wives, children, cattle and valuables there, praying in aid of the theory the legends in various parts of the world of mankind having in primitive days emerged from the depths of the earth. Where, as in Brittany, the dead are held not to have gone to a distant land, but to be dwelling in the neighbourhood, though invisible, he explains that the people were so hemmed in by foes and the sea, that there was no possibility of returning the weak and the ailing to their primitive home : hence when cast out of the society of the healthy and strong they dwelt as outlaws in the woods and the hills, and were provided, on being banished, with food and other necessities, which were renewed subsequently from time to time by their friends and children remaining in the community. In course of time the original facts were forgotten and the attentions paid to the living were continued to the dead as death-rites.

The theory, it need hardly be said, is founded on the implicit supposition that the mentality, knowledge and experience of mankind in its most archaic and primitive condition were no less accurate and definite than now. The evidence offered is that of the rites paid to the dead and the tales told of the dead by various peoples, and the arguments for the interpretation proposed are virtually pure assumptions. Interesting as the theory is, and possibly in part resting on facts, it will need much more than this to produce conviction, or even a presumption in its favour. E. S. H.

Reid Moir.

Pre-Palæolithic Man. By J. Reid Moir. Ipswich : W. E. Harrison, 1920.

56

Pp. 67, and 29 Plates. Size, 10 inches by 7½ inches. Price 7s. 6d. net.

Part of the contents of this book will already be familiar to readers of the *Journal of the Anthropological Institute* and the *Proceedings of the Prehistoric Society of East Anglia*. It is convenient, however, to have the facts brought together within the covers of one volume in conjunction with such new matter as Mr. Moir has gathered from later investigations. In these pages he endeavours to piece together the evidence, mainly taken from his own researches, for the existence of man at a date earlier than that represented by the earliest type of implement generally recognised as palæolithic. The problem is here attacked from two sides. The author first deals with the question of flint fractures. As the result of a long series of experiments he holds that artificially fractured flints exhibit a number of peculiarities which may be taken as criteria in judging the origin of a find

which, so far as type and accompanying circumstances go, might be the result either of artificial, or of natural forces. Such characteristics as the striking platform, cones of percussion, conchoidal rippling, and the like, will only be found in the products of man's handiwork ; they are present in specimens which Mr. Moir himself has produced by methods similar to those of the makers of flint implements, but they are absent in specimens produced by means which as nearly as possible simulate natural processes. In his second chapter the author submits to examination by these criteria characteristic samples from his own collection, and from specimens obtained from the Plateau-gravels of Kent. It is interesting to note that some specimens, of which the artificial origin has been strenuously upheld, are classed by Mr. Reid Moir as the products of natural causes.

Mr. Moir dwells at some length upon the interesting question of the development of palaeolithic "core" implements from the early crude forms, and shows by what process the flake implements were produced with the advent of the Mousterian culture. He also discusses at length the genesis of the rostro-carinate implements. In his final chapter the author puts forward the conclusion that there is definite and clear evidence that the pre-palaeolithic peoples are abundantly represented in this part of the world. He suggests that it would be logical to seek the origin of the human race in this country rather than in Central Asia, on the ground that the earliest evidences of man's existence have been found in Great Britain. E. N. F.

ANTHROPOLOGICAL NOTES.

"MAN": INCREASE IN PRICE.

57

Owing to the great increase in the cost of production, for some time past the monthly periodical *MAN* has been published by the Royal Anthropological Institute at a considerable loss. The cost of printing alone is now over 100 per cent. more than it was in 1914, the price of paper is considerably enhanced, and the new rates of postage will add seriously to the expenses.

In the circumstances the Council of the Institute has, with great reluctance, decided to raise the price of *MAN* both to Fellows and to the general public. The price from January 1st next will be :—

Fellows. Others.

Annual Subscription -	-	-	-	10s. Od.	£1
Single copies -	-	-	-	1s. Od.	2s. Od.

It is hoped that this increase will only be temporary. If at any time the cost of production should allow, the price of the periodical will be reduced in proportion.

ACCESSIONS TO THE LIBRARY OF THE ROYAL ANTHROPOLOGICAL INSTITUTE.

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(*Donor indicated in parentheses.*)

Linguistic Survey of India, Vol. VIII, Part I. Indo-Aryan Family, North-western Group and Specimens of Sindhi and Lahndā. Compiled and edited by Sir George A. Grierson. 13½ x 10. 584 pp. Calcutta. Superintendent Government Printing. 9s. 9d. (The Secretary of State for India.)

Through Lapland with Skis and Reindeer, By Frank Hedges Butler. Third impression. 8½ x 6. 286 pp. Four maps and 65 illustrations. T. Fisher Unwin, Ltd. 12s. 6d. net. (The Author.)

The Group Mind. A Sketch of the Principles of Collective Psychology, with some attempt to apply them to the Interpretation of National Life and Character. By W. McDougall. 9½ x 6½. 301 pp. Cambridge University Press. 21s. net. (The Publishers.)



FIG. 1.—OLIVE CRUSHING AT OULDJA.



FIG. 2.—OLIVE PRESS AT OULDJA.



FIG. 3.—OLIVE CRUSHER AT BENI FERAH.

ORIGINAL ARTICLES.

Algeria.

With Plate H.

Hilton-Simpson.

59

Two Primitive Algerian Oil Mills. *By M. W. Hilton-Simpson.*

Last winter, when I resumed my pre-war ethnographical researches among the Shawia Berbers of the Aurès mountains in Eastern Algeria, I had an opportunity of studying two methods of obtaining olive oil in use by the natives which, owing to their primitive character, may be worthy of the attention of archaeologists as well as of students of the existing industries of the Berbers.

The first of these two methods was noted in several villages, for example, Ouldja and Djellal, in the eastern part of the Aurès massif known as the Djebel Cherchar, some 60 miles to the E.N.E. of Biskra.

In this area each owner of olive trees appears to make his own oil, but it is not produced in large quantities for export to the neighbouring Sahara as is the case in the south-western portion of the Aurès.

There are three processes in the obtaining of the oil; crushing the olives, boiling them when crushed, and finally pressing them to extract the oil.

The olives are first laid upon a hard surface, sometimes consisting of a hollow in the mud floor of the house, the surface of which hollow has been baked with fire, sometimes of one or more large flat stones let into the floor and flush with it, and sometimes upon the ordinary mud floor which has not been specially hardened for the purpose in any way.

A large oblong stone is then rolled to and fro upon the olives to crush them. Sometimes this is done, as in Fig. 1 (Plate H), by two men sitting facing each other, one on each side of the stone, and rolling it backwards and forwards by pushing it in turn with their feet; the house at Ouldja in which this photograph was taken had a passage beside the court-yard which was just wide enough to enable the men to lean back upon the walls and thus facilitate the work of moving the stone with their feet.

In other cases the stone, roughly rectangular in shape and about 18 inches long by 12 inches wide, is simply pushed and pulled to and fro by hand by one man, who is usually seated on a large stone, if the olives are lying on stones laid flush with the floor, or on the edge of the hollow in the floor if a specially baked surface is used.

The stones used to crush the olives, with the exception of one or two fragments of Roman columns, did not appear to have been shaped or worked in any way by man.

The olives, having been crushed as above, are next boiled in a large pottery vessel such as can be made by almost any Shawia woman and are placed in round flat baskets of plaited halfa grass, when they are ready for the press.

The press, illustrated in Fig. 2 (Plate H), is extremely primitive.

The bed consists of a large stone, usually as nearly circular as possible, around the flat upper surface of which a circular channel about half an inch deep has been chipped an inch or two from its edge.

This channel is provided with one outlet through which the oil can flow into receptacles placed to catch it.

The outlet usually consists of a small trench, such as can be seen in Fig. 2, running from the circular channel to the edge of the stone bed, and to which is fixed a spout of reed (also visible in Fig. 2, lying in the circular channel); but, in some press-beds noted, the outlet consisted of a circular hole bored from the main channel to a point somewhat below the level of the channel in the side of the stone.

The implements used in cutting the channel and boring the hole would doubtless be the short-handled iron-headed pick with two points used by the Shawia to chip the stones required for their querns and for their water-driven flour mills.

The basket containing the freshly boiled olives is laid upon the press-bed and a heavy oblong stone is placed upon the top of it.

Upon this stone stands a woman who by moving her weight alternately from one foot to the other provides the additional pressure necessary to cause the oil to exude from the baskets and to flow through the channel and the outlet to the goat-skin, earthen vessel or gourd in which it is to be stored.

The white stone seen in Fig. 2, between the press bed and the oblong stone, was only so placed to raise the latter while a long photographic exposure was made and has nothing to do with the press.

Up to the present I have noted the above system of obtaining oil only in the eastern portion of the Aurès massif.

MM. Hanoteau and Letourneux in their *La Kabylie* (Vol. I, p. 521) describe the obtaining of olive oil by the women of the Kabyle Berbers, who, they state, trample upon the crushed olives to reduce them to pulp, but they make no mention of a system of crushing and pressing such as I have described above. The second of the two methods of obtaining oil is less primitive than the first.

It was noted at the village of Beni Ferah in the S.W. portion of the Aurès, the Berber inhabitants of which export considerable quantities of oil to the nomad Arabs of the adjacent desert and to the neighbouring oases of El Kantara and Biskra.

The olives are crushed by means of a heavy grindstone in a manner similar to that described as obtaining among the Kabyles by MM. Hanoteau and Letourneux (*La Kabylie*, Vol. I, p. 524) and by Messrs. MacIver and Wilkin (*Libyan Notes*, p. 50), and which is illustrated by my photograph (Fig. 3, Plate H).

The grindstone, which is circular and about 31 inches in diameter and 9 inches wide, is placed nearly vertically in a circular trough of rough masonry, the side of which is about 20 inches in height from the floor to its rim on the outside.

In the centre of this trough stands a vertical revolving post consisting of a tree trunk which is socketed into the bottom of the trough and also socketed, by means of a wooden block similar to (but larger than) those used in connection with the local door-locks, to a stout beam which runs across the roof of the building in which the crusher is situated.

A bar of wood passes horizontally through this vertical post, where it is retained by means of wooden pegs, and through the centre of the grindstone, forming the axle of the latter.

To the distal end of this horizontal bar a mule or donkey is harnessed by means of halfa cords and a swingle-tree. The animal, which is sometimes blindfold, possibly to prevent its becoming dizzy, simply walks round and round outside the trough and thus draws the horizontal axle round causing the grindstone to crush the olives as it rolls around the inside of the trough.

To prevent the upper edge of the grindstone (which, as I have pointed out, is not quite vertical) from bearing upon the revolving post and thus damaging it by friction, a wooden peg is driven into the post, as shown in Fig. 3.

I have noted similar olive crushers in other parts of Algeria, and have seen a larger one in Southern Tunis in which a camel was the animal employed.

After having been crushed, the olives are boiled in a large cauldron, the sweepings of the press serving as fuel for the furnace, and they are then placed in round flat baskets of halfa grass and are ready to be pressed. The press shown in Fig. 4 is quite different from the Kabyle presses described in *La Kabylie* and *Libyan Notes*, but appears to bear a striking resemblance to the press reconstructed by Professor J. L. Myres as a result of his examination of the ancient Senams of Tripoli and illustrated by him in the *Proceedings of the Society of Antiquaries of London*, Second Series, Vol. XVII, p. 286.

A glance at the drawing, Fig. 4, which Mr. Rost, of Oxford, has prepared from my own rough sketches, will show the principle upon which the press is worked.

The thicker end of a heavy tree trunk, A, about 12 feet long and 18 inches in diameter, rests upon a ledge, B, in the rough stone wall of the building and is prevented from moving laterally by means of two wooden posts, CC, set nearly vertically upon the ledge and by heavy stones placed around them; a beam let into

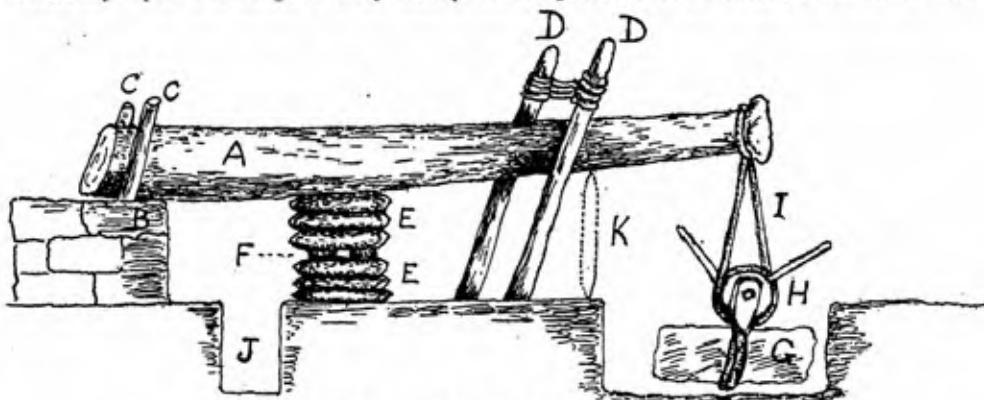


FIG. 4.—OLIVE PRESS AT BENI FERAH.

the wall and running transversely above the end of the tree trunk prevents any considerable upward movement of the thick end when the thinner distal end is depressed. This beam is not shown in the sketch.

At about two thirds of its length from the thicker end, the trunk, A, is prevented from excessive lateral movement by means of two small tree trunks, DD, about 7 inches in diameter, which are sunk into the floor of the building, one on each side of the trunk, A, and connected together near their tops by stout halfa rope to increase their rigidity. The weight of the trunk, A, rests on a pile of round halfa baskets, EE, the lower ones (containing the olives) being separated by two blocks of wood, F, from the empty baskets, used as padding, which are placed above these two blocks.

The pressure of the trunk, A, upon the baskets is increased by means of the rectangular stone, G, measuring about $32 \times 22 \times 14$ inches, which is raised from the pit in the floor, in which it lies when not in use, towards the thin end of A, a wooden winch, H, being lashed by cords to the stone and connected by cords, I, with the end of the tree trunk to enable the heavy stone to be raised.

Obviously the weight of the stone when drawn up from the pit greatly increases the pressure of the trunk (from which it is then suspended) on the baskets, EE, and causes the oil to exude into the pit J, which is sunk in the floor to receive it.

From J the oil is removed by hand with the aid of a metal or earthen pot and transferred to receptacles, such as goatskins, &c. I was unable to examine the press-bed owing to the débris of olives which concealed it from view while the press was being worked, but I should imagine it would be found to consist of a channelled stone, as shown in Fig. 2, placed on the edge of the pit, the channel of which would be of little use owing to its being blocked by the débris.

To relieve the pressure of the tree trunk upon the baskets when the latter have to be moved, a moveable wooden post, K, is inserted between the trunk and the floor. The construction of the winch, H, can be seen in Fig. 5.

The wooden roller, H, eight inches in diameter, is socketed by means of wooden projections from its ends to two slightly fan-shaped blocks of wood, LL, which are bound to the stone, G, by a halfa rope, M, passing round the stone and through holes in the lower ends of the blocks.

The winch is turned by means of two wooden levers, NN.

The crusher and the press are located in adjacent rooms in one stone house, and the furnace for boiling the olives is placed in a corner of the room in which the press is situated.

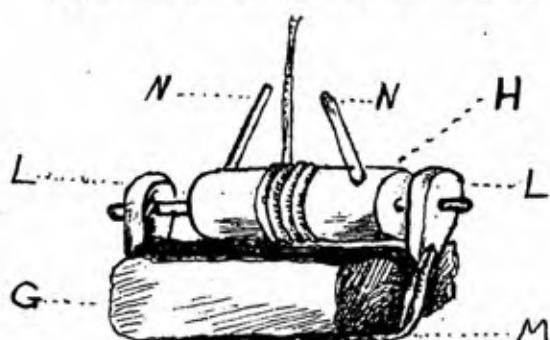


FIG. 5.—WINCH OF THE PRESS AT BENI FERAH.

The natives regard this press as ancient, and state that it is Roman; but among the Shawia every antiquity is ascribed to the Romans, from whom some of these Berber tribes claim to be sprung.

M. W. HILTON-SIMPSON.

West Africa: Physical Anthropology.

Malcolm.

Notes on the Physical Anthropology of certain West African Tribes.—(I.) Munchi. By L. W. G. Malcolm.

60

The subject-matter of the present paper was obtained during a short stay that I made at Ibi, on the Benue River, Northern Nigeria, in the latter part of 1915. The men from whom the observations were taken were Munchi who were undergoing terms of imprisonment in the Ibi Gaol. They nearly all came from the district around Abinsi, on the Benue River. For permission to take these observations I have to thank the then Commissioner of Police (Major J. N. Price).

There does not appear to be a great amount of literature concerning this important tribe. As far as I can ascertain there have been no general observations made as regards their physical anthropology. They are very warlike, and have always resisted the Government punitive patrols sent against them. They do not migrate far; but I have seen one Munchi in Calabar, where he had been taken as a servant by one of the native soldiers. Occasionally one or two have enlisted in the Nigeria Regiment, but on the whole they seem to keep to their own territory.

In appearance they are very well developed and proportioned. In skin tint they are somewhat lighter than the surrounding tribes. The hair is woolly, and the diameter of the coils of various parts of the body are as follows:—Head, 2·50 mm.; beard, 2·25–5·50 mm.; axilla, 3 mm.; pubes, 2·50–4·25 mm.

A Munchi can always be distinguished by the pattern of the keloids on his face. These are generally in the form of large knobs which are grouped in squares or circular patches at the outer angles of the mouth and eyes.

As my time was limited, and as I only had Martin's field set of instruments, the list of recorded observations is therefore somewhat scanty. The observations as set forth in Table I. were taken in accordance with the instructions as laid down in Martin's *Lehrbuch der Anthropologie*.

In Table 2 the True Means of each series of observations, together with the Standard Deviations, Coefficients of Variation, and the Probable Errors are set forth in order. In Table 3 the various deduced indices are shown, and in Table 4 their generalised results.

It is not proposed to examine these results further, as I will deal with them when considering the physical anthropology of certain other West African tribes in a future paper.

TABLE I.

Serital Number.	Ghab.-Tunion.	Greasest Head Length.	Greasest Head Breadth.	Frontal Diam.	Horn, Gt. Cervum.	Trans. Gt. Cervum.	Spk. Gt. Cervum.	Bifurc. Diam.	Nas.-Tunion.	Mfr. Frontal Diam.	Bifurc. Diam.	Bifurc. Diam.	Bifurc. Diam.	Nas.-Prosth.	Gt. Vertex.	Int. oc. Diam.	Int. oc. Diam.	Oc. Nasal Dist.	Nasal Height.	Nasal Breadth.	R. Nostril Length.	R. Nostril Width.	Nasal Depth.	R. Nostril Length.	R. Nostril Width.	Nasal Breadth.	Mouth Length.	Lip Height.	Bur. Length.	Bur. Width.				
1	187	184	177	147	114	105	547	374	352	134	130	100	122	70	61	200	107	34	59	29	37	43	44	17	14	8	64	31	56	34				
2	192	187	182	145	134	118	550	355	365	142	132	114	110	65	60	220	99	40	70	36	40	40	47	17	18	8	66	21	60	37				
3	185	187	182	142	128	110	540	332	335	128	126	115	111	64	60	200	5	96	5	34	5	60	35	40	40	42	16	14	5	9	53	24	55	37
4	182	180	172	147	128	110	534	365	360	137	132	117	123	65	55	198	91	32	61	35	41	38	44	21	16	9	56	21	50	40				
5	190	184	180	149	136	108	550	382	357	137	127	120	110	77	70	224	91	40	64	38	48	50	43	21	12	8	60	26	62	35				
6	175	177	172	142	141	112	522	352	358	135	132	110	120	70	65	218	106	36	70	40	38	45	46	21	15	9	51	30	64	34				
7	198	187	184	144	138	118	560	356	385	136	140	115	123	68	57	220	110	44	75	44	40	46	42	23	14	9	5	57	24	58	34			
8	197	182	175	147	132	110	555	345	372	132	131	106	127	74	65	225	94	35	65	41	42	41	42	20	20	10	52	16	58	40				
9	190	184	176	142	125	110	552	325	372	127	134	110	127	76	60	212	100	36	64	38	44	50	46	20	20	10	60	26	54	36				
10	206	204	199	151	122	112	565	355	382	132	136	116	126	74	67	217	112	40	75	44	41	45	46	50	20	14	10	64	27	60	40			
11	180	178	170	137	125	112	520	334	360	127	120	92	111	64	60	205	97	32	60	36	43	44	40	18	14	6	55	24	51	34				
12	187	188	180	140	124	114	547	360	390	136	130	103	114	74	64	221	106	40	71	38	40	43	45	17	13	11	52	26	54	34				
13	187	180	171	149	137	113	554	376	372	140	140	100	115	73	52	222	103	41	68	43	40	42	44	16	11	10	57	24	5	60	40			
14	187	180	172	144	136	111	527	336	356	140	15	130	98	114	70	62	201	101	5	37	5	69	38	42	44	42	17	12	11	58	21	52	33	
15	192	184	179	152	128	112	554	374	376	137	126	104	116	70	67	207	101	43	67	42	44	50	40	25	16	9	59	33	53	34				

TABLE I.—*continued.*

Serial Number.	Serial Length.	Globe Motion.	Globe Frontal.	Dam.	Hots. Groum.	Trains. Groum.	Sag. Groum.	Bi-molar Dam.	Bi-gymn. Dam.	Bi-gon. Dam.	Bi-gymn. Dam.	Brx. ec. Diam.	Intr. ec. Diam.	Intrupnp. Dist.	Oe. Nasal Dist.	Nasal Length.	Nasal Depth.	Nasal Breadth.	Mouth Length.	Bar Length.	Bar Width.		
16	180	174	170	140	125	110	502	344	342	128	130	96	115	70	57	206	94	34	60	40	37	44	41
17	192	188	181	146	124	111	550	347	365	146	124	98	114	78	70	212	109	42	70	43	44	52	50
18	194	191	182	141	141	102	548	381	388	127	132	102	120	80	74	225	96	36	65	38	50	54	35
19	190	184	178	146	124	119	552	352	362	132	128	100	116	77	68	216	106	40	70	44	46	45	42
20	193	191	168	140	125	120	556	366	375	128	125	101	116	73	56	206	98	40	69	44	38	43	45
21	182	174	168	137	128	104	515	345	342	128	130	92	116	70	56	212	97	33	63	42	41	44	43
22	200	188	180	147	128	115	542	375	376	138	127	102	118	77	68	228	107	42	74	42	47	47	44
23	192	181	172	152	128	111	556	392	382	137	130	104	122	72	64	223	108	40	74	43	44	44	41
24	182	180	172	144	117	110	523	340	336	137	130	92	117	67	61	218	95	42	65	42	45	47	52
25	193	156	182	149	126	110	556	372	377	137	130	102	126	77	70	220	103	40	64	41	46	47	46
26	191	180	171	142	126	109	528	360	357	133	124	97	116	70	55	215	100	35	65	36	42	44	44
27	190	184	178	138	136	112	539	356	370	139	132	110	128	78	64	232	101·5	40	68·5	41	52	51	37
28	187	180	174	141	112	111	538	340	364	136	130	105	123	70	60	211	101	35·5	65·5	41	43	42·5	41
29	180	174	169	140	124	111	523	360	362	135	126	100	117	72	63	200	101·5	31	65	33	41·5	46	40

TABLE 2

	Observation.	Min.	Max.	M.	σ	V.
1	Greatest Head Length -	175	206	189.03 \pm 0.83	6.65 \pm 0.58	3.52 \pm 0.31
2	Glabella-Inion - -	174	204	183.49 \pm 0.75	6.05 \pm 0.53	3.29 \pm 0.29
3	Nasion-Inion - -	168	199	176.42 \pm 0.79	6.58 \pm 0.56	3.67 \pm 0.32
4	Greatest Head Breadth -	137	152	144.17 \pm 0.53	4.26 \pm 0.37	2.95 \pm 0.26
5	Head-height - - -	112	141	128.00 \pm 0.87	6.94 \pm 0.62	5.42 \pm 0.47
6	Min. Frontal Diam. -	102	120	111.37 \pm 0.50	3.99 \pm 0.35	3.59 \pm 0.31
7	Horiz. Circum. - -	502	565	541.55 \pm 1.92	15.33 \pm 1.35	2.77 \pm 0.23
8	Trans. Circum. - -	325	392	356.93 \pm 1.65	13.13 \pm 1.16	3.67 \pm 0.32
9	Sag. Circum. - -	335	390	365.17 \pm 1.81	14.49 \pm 1.28	3.96 \pm 0.35
10	Bi-Malar Diam. - -	127	146	134.56 \pm 0.64	5.14 \pm 0.45	3.81 \pm 0.33
11	Bi-zygomatic Diam. - -	120	140	129.80 \pm 0.50	3.51 \pm 0.35	2.70 \pm 0.23
12	Bi-gon. Diam. - -	92	120	104.18 \pm 1.00	7.71 \pm 0.71	7.69 \pm 0.68
13	Bi-Mastoid. Diam. -	110	128	118.38 \pm 0.65	5.24 \pm 0.46	4.42 \pm 0.38
14	Nas.-Stom. - - -	64	80	72.00 \pm 0.55	4.40 \pm 0.38	6.11 \pm 0.54
15	Nas.-Prosth. - -	52	74	63.25 \pm 0.65	4.89 \pm 0.44	7.73 \pm 0.70
16	Gnath.-Vertex - -	198	232	214.18 \pm 1.10	9.22 \pm 0.79	4.34 \pm 0.38
17	Ext. Oc. Diam. - -	91	112	101.56 \pm 0.65	5.21 \pm 0.46	5.10 \pm 0.44
18	Int. Oc. Diam. - -	31	44	37.83 \pm 0.50	3.59 \pm 0.35	9.44 \pm 0.79
19	Interpup. Dist. - -	59	75	66.79 \pm 0.57	4.59 \pm 0.40	6.85 \pm 0.62
20	Oc. Nasal Dist. - -	29	44	39.52 \pm 0.50	3.67 \pm 0.35	9.28 \pm 0.81
21	Nasal Length - -	37	52	42.69 \pm 0.50	3.72 \pm 0.35	8.65 \pm 0.79
22	Nasal Height - -	38	54	45.66 \pm 0.50	4.04 \pm 0.35	8.84 \pm 0.78
23	Nasal Breadth - -	35	52	43.34 \pm 0.44	3.51 \pm 0.31	8.09 \pm 0.71
24	Nasal Depth - -	16	25	19.45 \pm 0.26	2.12 \pm 0.18	10.89 \pm 0.96
25	R. Nostril, Length -	11	20	15.29 \pm 0.29	2.39 \pm 0.21	15.63 \pm 1.38
26	R. Nostril, Width -	6	15	9.63 \pm 2.00	1.56 \pm 1.41	16.19 \pm 1.41
27	Length of Mouth -	47	66	57.03 \pm 0.62	4.97 \pm 0.44	8.71 \pm 0.79
28	Height of Lips -	16	33	25.94 \pm 0.54	4.32 \pm 0.39	14.40 \pm 1.27
29	R. Ear, Length -	50	64	56.73 \pm 0.57	3.64 \pm 0.40	6.41 \pm 0.56
30	R. Ear, Width -	28	41	35.42 \pm 0.40	3.20 \pm 0.28	9.03 \pm 0.79

TABLE 3.

	L.-B.	L.-H.	B.-H.	Trans. Fronto- Parietal.	Upper Facial.	Parieto- Zygomatic.	Fronto- Zygomatic.	H.-B. (Nose).	B.-D. (Nose).	L.-W. (Ear).
1	78·61	60·96	77·55	71·43	46·92	88·44	76·92	102·33	38·64	60·71
2	75·52	69·79	92·41	81·38	45·45	91·03	86·36	117·50	36·17	61·67
3	76·76	69·19	90·14	77·46	47·62	88·73	91·27	105·00	38·10	67·27
4	80·77	70·33	87·07	74·83	41·67	89·80	88·64	115·79	47·73	80·00
5	78·42	71·96	91·28	72·48	55·12	85·23	94·49	86·00	48·84	56·45
6	81·14	80·57	99·30	78·87	49·24	92·96	83·33	102·22	45·65	53·13
7	72·73	69·70	95·83	81·94	40·71	97·22	82·14	91·30	54·76	58·62
8	74·62	67·01	89·80	74·83	49·62	90·34	80·92	102·44	47·62	68·97
9	74·74	65·79	88·03	77·46	44·78	94·37	82·09	92·00	43·48	66·67
10	73·30	59·22	80·79	74·17	49·26	90·07	85·29	108·70	40·00	66·67
11	76·11	69·44	91·24	81·75	50·00	87·59	76·67	90·91	45·00	66·67
12	74·87	66·31	88·57	81·43	49·23	92·86	79·23	104·65	37·78	62·96
13	79·68	73·26	91·95	75·84	37·14	93·96	71·43	104·76	36·36	66·67
14	77·01	72·73	94·44	77·08	47·69	90·28	75·38	95·45	40·48	63·46
15	79·17	66·67	84·21	73·68	53·17	82·89	82·54	80·00	62·50	64·15
16	77·78	69·44	89·29	78·57	48·85	92·86	73·85	93·18	51·22	61·54
17	76·04	64·58	84·93	76·03	56·45	84·93	79·03	96·15	44·00	60·00
18	72·68	72·68	100·00	72·34	56·06	93·62	77·27	64·81	54·29	53·33
19	76·84	65·26	84·93	81·51	53·13	87·67	78·13	93·33	47·62	54·24
20	72·54	64·77	89·29	85·71	44·80	89·29	80·80	104·65	46·67	60·71
21	75·27	70·33	93·43	75·91	43·08	94·89	70·77	97·73	46·51	61·40
22	73·50	64·00	87·07	78·23	53·54	86·39	80·31	93·62	50·00	65·45
23	79·17	66·67	84·21	73·03	49·23	85·53	80·00	93·18	48·78	65·52
24	79·12	64·29	81·25	76·39	46·92	90·28	70·77	110·64	32·69	68·33
25	77·20	65·28	84·56	73·83	53·85	87·25	78·46	97·87	43·48	63·42
26	74·35	65·97	88·73	76·76	46·77	87·32	78·23	100·00	47·73	55·36
27	72·68	71·58	98·55	81·16	48·48	95·65	83·33	72·55	54·05	62·75
28	75·40	59·89	79·43	78·72	46·15	92·20	80·77	95·35	39·02	52·83
29	77·78	68·89	88·57	79·29	50·00	90·00	79·37	83·96	42·50	61·29

TABLE 4.

Indices.	Min.	Max.	M.	σ	V.
Length-Breadth (Head)	72.54	81.14	76.42 \pm 0.30	2.43 \pm 0.21	3.17 \pm 0.28
Length-Height (Head)	59.22	80.57	68.11 \pm 0.62	4.70 \pm 0.44	6.90 \pm 0.62
Breadth-Height (Head)	77.55	100.00	88.80 \pm 0.48	5.51 \pm 0.48	6.19 \pm 0.54
Trans. Fronto-Parietal	71.43	85.71	77.37 \pm 0.50	3.57 \pm 0.35	4.61 \pm 0.44
Upper Facial	37.14	56.45	48.41 \pm 0.66	4.59 \pm 0.46	9.48 \pm 0.88
Parieto-Zygomatic	82.89	97.22	90.06 \pm 0.43	3.45 \pm 0.31	3.83 \pm 0.34
Fronto-Zygomatic	70.77	94.49	80.02 \pm 0.67	5.43 \pm 0.47	6.78 \pm 0.62
Height-Breadth (Nose)	64.81	117.50	96.58 \pm 1.42	11.41 \pm 1.01	11.34 \pm 1.00
Breadth-Depth (Nose)	32.69	62.50	44.97 \pm 0.82	6.63 \pm 0.58	13.26 \pm 1.17
Length-Width (Ear)	52.83	80.00	62.45 \pm 0.72	5.80 \pm 0.51	9.28 \pm 0.82

Archaeology.

Vulliamy.

An Uncharted Village in Cornwall. By C. E. Vulliamy, F.R.G.S.

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Walking down the westward slope of Mulfra Hill near Penzance, the writer discovered by accident the site of an ancient village. It is not shown on the six-inch Survey, and since there is no record of it in any standard topographical work and no trace of it on any map, there appears reason to believe that the site has escaped the notice of antiquarians. In any case, the writer thinks that details may be of interest.

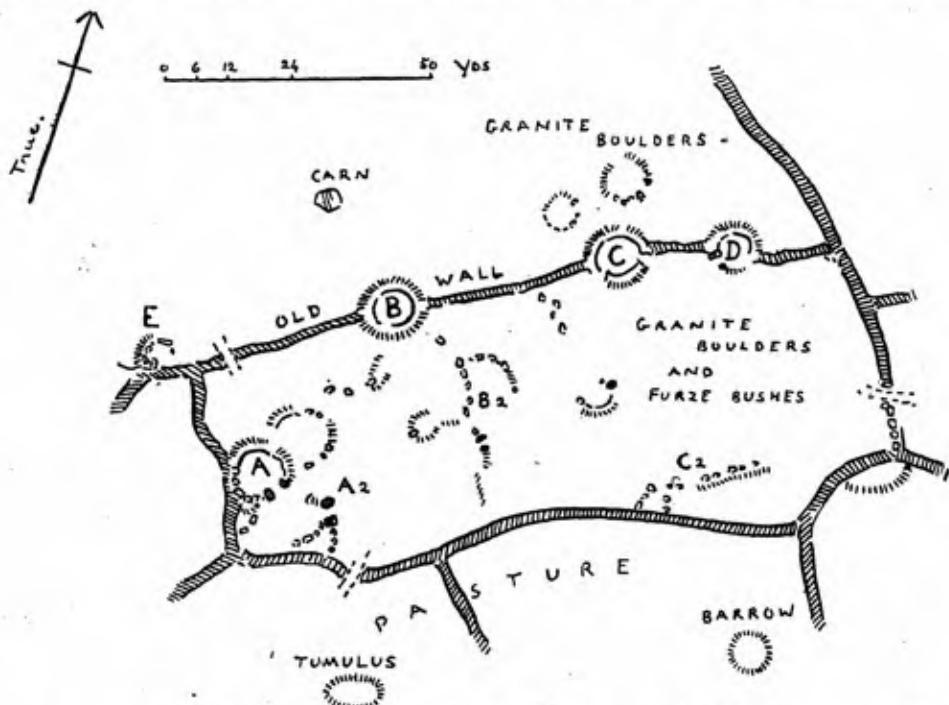
Mulfra Hill is roughly three-and-a-half miles from Penzance in a north-westerly direction. A ruined cromlech stands near the top of the hill. On the southern slope, close to the hamlet of Mulfra, are the traces—very faint ones—of a but-cluster; and the map-makers have written "Hut Circles" over a series of four little pits north-west of the summit. These pits are suggestive rather of old mine-workings. Why the site we are discussing should have been ignored by the surveyors is hard to explain. To the least observant, the upright door-posts, the perfectly symmetrical circles, and the profusion of artificially-placed blocks of granite would have made clear the nature of the remains. It is unthinkable that the place should have been covered so thickly with furze bushes that the remains were concealed by them, while the walls of the enclosed moorland make actual contact with the huts.

The village is contained for the most part within the boundaries of a strip of walled-in moor on the edge of cultivation, bearing almost due west from the hill-top. The ground slopes gently from east to west; it is rough and broken; strewn with large boulders and dotted with furze bushes. An old wall connects three of the round huts, probably taking advantage of the latter to link it up and save labour.*

* The possibility of this being an ancient wall, standing in some original relation to the huts, must not be ruled out.—C. E. V.

On the cultivated land to the south there are three tumuli; one of them circular, not unlike the bases of the chambered barrows which are found in this district.

On entering the enclosure, the two large upright stones at its south-western end attract notice. As the eye passes over the ground, similar stones are observed, and on approaching them the hut-circles are immediately discovered. The plan renders unnecessary an explanation of their position. B, C and D on the line of the wall are excellent specimens. D is constructed of massive granite slabs, chosen and placed with great care—a long slab, which may have been the lintel, lies between the two posts at the entrance. C is formed of earth and stones. B is the most remarkable in some ways—built of small stones with much earth; the most perfect and exact circle of all. At E we have what may be the remains of a kistvaen; the enclosure is too small for a living chamber, and is bounded on one side by a large slab set on its edge. The large uprights at A 2 probably mark the entrance to a court or enclosure; they stand about five feet above the ground. A has



fine upright stones at the entrance, and a base of heavy blocks. Continuous lines of stones at B 2 and C 2 may be boundary walls.

Readers should be reminded that there are several good examples of ancient villages in this district. Those at Bosullow and Chysauster are best known, though Chysauster, incomparably the best preserved, may be of a later period. Generally speaking, the Cornish hut-circles are supposed to belong to the late Iron Age.

A more tempting field for exploration and excavation cannot be imagined. The spade should reveal "finds" here without any great labour, for the soil within the circles is soft and peaty.

The farmstead of Bodrifty stands about 400 yards to the south-east, and the writer gives this name to the site for purposes of identification.

C. E. VULLIAMY.

South America: Ethnology.

Ling Roth.

A Loom from Iquitos. By H. Ling Roth.

The Liverpool Free Public Museum has lately received a collection of ethnological specimens from Iquitos, Peru, on the Upper Amazon, made by H.B.M. ex-Consul David B. Adamson and his son, D. Wilson Adamson. Among other articles of special interest is a small loom, which in so far as I can ascertain has not yet been recorded.

The little loom consists of a piece of cane bent into the outline of a section of a pear (Fig. 1), the two ends overlapping and being fastened together. About a third of the length from the top, a piece of band is carried across and fastened to the two sides. This cross band is supported by two stays spreading from the centre of the top of the frame. The warp is continuous and extends from the cross band to the bottom of the frame. The one leash is continuous, but the heddle rod is missing. The length of the loom is 42 cm. ($16\frac{1}{2}$ in.) and greatest width 37 cm. ($11\frac{1}{8}$ in.). The web on the loom is about 9 mm. ($\frac{11}{32}$ in.) wide and contains 49 warps or 54 to the cm. (137 to the inch).

The web on the loom is without any pattern, but the accompanying ribbons, made apparently on this or a similar loom, are patterned by means of coloured warps; in three of them the warp is coloured brown and buff, and in the fourth the colour is pale blue and buff. The patterns are illustrated in the accompanying figure (Fig. 2). Three of the ribbons vary from 13 to 14·2 cm. in length and their width from ·6 to 1·4 cm. The fourth, a short piece, is 4·1 cm. wide. The lengths given are exclusive of the fringes made of the thrums (warp ends).

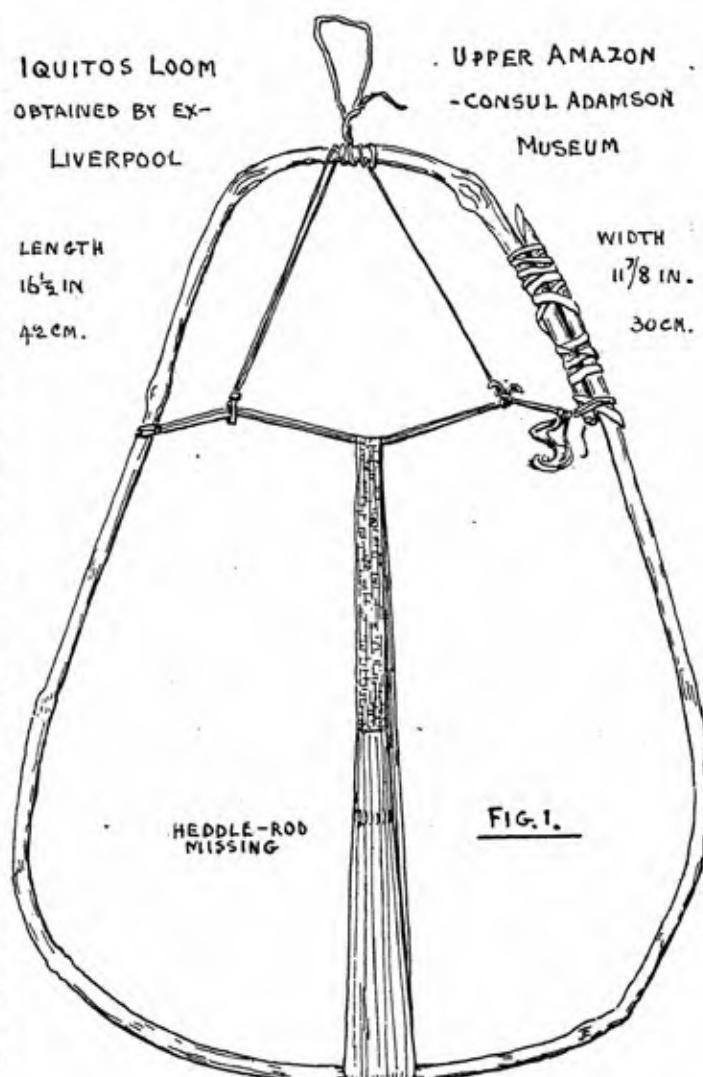


FIG. 1.

Accompanying the loom are four spindles (Fig. 3), all provided with pot whorls. Two of the whorls are decorated but with quite different designs ; there is no decoration on the other two. The pivot of one is carved, all the others are plain. The dimensions are : lengths, 27, 25, 30 and 19 cm. respectively ; diameters of whorls 3·6, 2·8, 2·8 and 2·7 cm. respectively.

In answer to my enquiries, Dr. Clubb, who has kindly allowed me to make the illustrations, has elicited the following information from ex-Consul Adamson :—“ They, the “ Iquitos people, don’t make any woven fabric “ but they wear plenty—mostly from Man-“ chester, etc.—they are often seen with the “ native ribbons on their wrists, like bracelets. “ Specimens of Indian weaving on a larger “ scale are the *kushmas* (ponchos) and a skirt “ or waistband in the collection. These are “ all entirely of Indian make and are from “ the Ucayali and tributaries. Imported goods take their place where civilisation reaches, “ and they are mostly in the form of ordinary “ shirts or dungaree jumpers.” He had not heard of any ritual in connection with weaving. As regards the ornamentation on the spindles, he says he has not heard of any significance attached to these, but continues : “ I only “ gather the possibility of significance, as an “ Indian I had attached to me stated that “ a bit of stuff—a square with some device— “ at the bottom of one of the blow-pipe dart “ cases showed that it belonged to someone “ who had killed a white man. So far as “ I know the designs have no further meaning “ than ornamentation.” It is not known whether men or women do the weaving. In general the articles in the collection “ were gathered from various tributaries and “ affluents of the Amazon above or near “ Iquitos such as the rivers Napo, Putu-“ mayo, Javary, Huallago, Atta Marañon, “ Ucayali etc., and the actual place of “ origin of many of them is not definitely “ known.”

On enquiring of my brother, Dr. Walter E. Roth, whether he had seen any loom like the above in British Guiana, he replied he had seen something similar but the frame was made of a bent piece attached by its two ends to a straight rod and that he

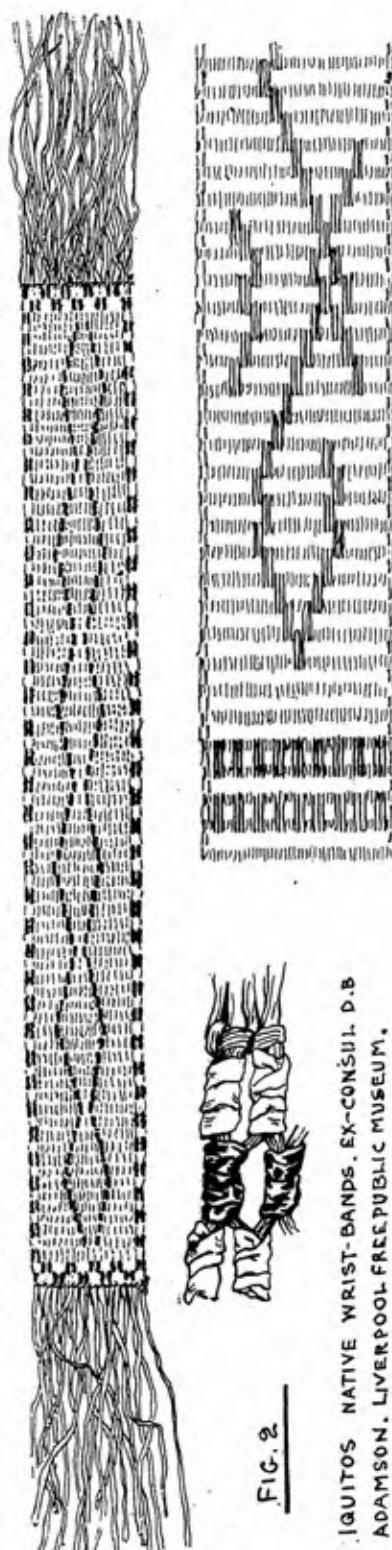


FIG. 2

IQUITOS NATIVE WRIST-BANDS. EX-CONSUL D.B.
ADAMSON. LIVERPOOL FREE PUBLIC MUSEUM.

was giving details in his forthcoming work to be published by the Smithsonian Institute and now in the proof stage. A loom such as he describes is illustrated

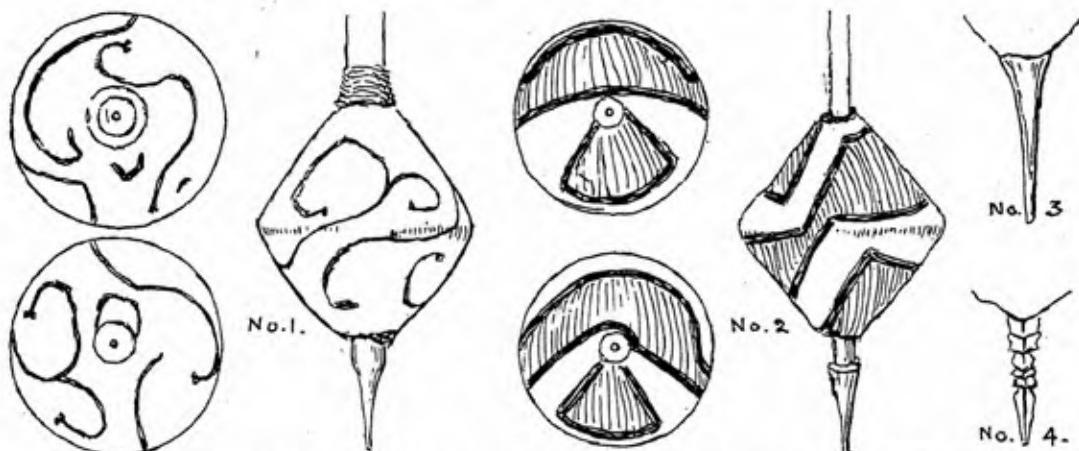


FIG. 3. IQUITOS SPINDEL-WHORLES. EX-CONSUL ADAMSON. LIVERPOOL FREE PUBLIC MUS.

by W. C. Farabee in his *Central Arawaks*, Plate XXIX, Anthropol. Publications, University of Pennsylvania, Vol. IX, Philadelphia, 1918. H. LING ROTH.

REVIEWS.

India.

The Aryans. By J. Kennedy.

The attention of ethnologists may be directed to a valuable paper by Mr. J. Kennedy, published in the *Journal of the Royal Asiatic Society* for October, 1919, entitled "The Aryan Invasion of Northern India." The problems dealt with in this paper are still the subject of active controversy, but it is useful to have the essential facts, with full references to the original authorities, brought together by a scholar possessed of an intimate knowledge of the question. He points out that the Aryas, whoever they may have been, shared with the Scythians a characteristic tallness of stature, while neither the Medes nor Persians were noted for their height. Considering the other element in the races of India, the Dravidian, he notices the Negrito element along the northern coasts of the Arabian Sea. Northern and Central Rajputana was colonized from the Punjab, the Gangetic Doab by the Kuru-Panchalas, Oudh and Bihar from Kosala and Videha. He gives a final blow to Risley's slap-dash theory of the Aryanisation of the Punjab, and he shows the importance of the watershed between the Indus and the Ganges, lying west of Delhi, as the predominant influence distinguishing in race and speech the Indo-Aryans from the Aryo-Dravidians from the earliest times down to the present day.

Kennedy.

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W. CROOKE.

Gloucestershire: Archaeology.

The Ancient Entrenchments and Camps of Gloucestershire. By Edward J. Burrow. Cheltenham and London: Ed. J. Burrow & Co., Ltd. 4to. 1919. 21s. net.

Burrow.

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By degrees the earthworks of England are being figured and described; but little reliable work of this character was placed upon record before the dawn of the

present century, except such isolated instances as were fully dealt with by General Pitt-Rivers, Mr. Chalkley Gould, and a few other field-archæologists. In Vol. III of *Excavations in Cranborne Chase* (1892), Pitt-Rivers gave an excellent "Map of "Ancient Dorset, Wilts, Somerset and part of Hants," in which most of the "camps" in this area were clearly indicated. The material used was not only based upon his own researches, but upon the published works of Scarth, Warne, Guest, Foster, Skeat, Shore, Rhys, Wright, Elton and Witts.

It is but sixteen years ago that Professor Windle listed the better known ancient earthworks of the English counties in his book on *Remains of the Prehistoric Age in England*. This was followed from time to time by chapters, illustrated by plans, in some of the volumes of the *Victoria History of the Counties of England*, and these will continue to have a distinct value until each county has produced a separate volume on its earthworks.

Dealing with the subject under discussion, 1908 was a notable year, for Mr. J. C. Wall issued a pocket-edition of *Ancient Earthworks*; and Mr. A. Hadrian Allcroft published his valuable and comprehensive work entitled *Earthwork of England*, covering 711 pages, and containing 224 plans and sectional diagrams. We have reason to believe that Mr. Allcroft has since then been working in the same direction, and it is hoped that we may ere long have the benefit of the records and observations* which he must have accumulated since 1908.

In 1913 we welcomed the appearance of *The Ancient Earthworks of Cranborne Chase*, by Mr. Heywood Sumner, a volume of pleasing format, well produced, and delightfully illustrated in the author's original style. A companion volume, of equal interest, entitled *The Ancient Earthworks of the New Forest*, was produced in 1917. Nor must we forget *An Introduction to Field Archaeology as illustrated by Hampshire*, issued in 1915, from the pen of Dr. J. P. Williams-Freeman—a volume of nearly 500 pages, illustrated chiefly by maps and plans based upon those of the Ordnance Survey.

Now we have before us Mr. Burrows book on *The Ancient Entrenchments and Camps of Gloucestershire*—a well-printed 4to volume of 176 pages, copiously illustrated with line and wash drawings—artistically treated and of considerable merit. There is a good folding map of the county at the end of the volume, in which the approximate location of the earthworks referred to by the author is indicated.

The volume is divided into three parts. Part I, in 24 pages, gives a short summary of the history of Britain, with Gloucestershire in particular, from the Stone Age down to the period of the earthworks of the Parliamentary wars. In places the opinions expressed are decidedly debateable. The presence of a large number of flint implements and chips is not a "sufficiently convincing proof of the "entrenchments having been occupied by men of the Stone Age" (p. 11). The average stature of male skeletons found in the long barrows, given as 5 ft. 6 ins., strikes one as being rather high (p. 14). On p. 20 we read of "reindeer picks" being used to loosen the soil: we do not think that any picks of this period have been met with other than those of the red-deer, such as have been found so plentifully in the Grime's Graves, the shafts at Maumbury Rings and the great fosse of Avebury. How frequently one finds Dr. Thurnam's name spelt as "Thurman" (p. 16). Again, Druidism is mentioned in relation to Stonehenge. On p. 18 "Knowle Hill Camp" should be "Worlebury Camp"; but it seems

* Some of his observations on Stone Circles have recently been brought together in an article, entitled "The Modernity of Stonehenge." (*The Nineteenth Century and After*, April, 1920, pp. 678-696.)

unlikely that the small pits at Worlebury were used as dwellings, the general opinion being that they were intended for the storage of grain. Knowle Hill (or at least the nearest hill of that name) is in the parish of Bawdrip on the Polden Hills, where ancient remains have been found also. Winkelbury Camp should be described as being in S. Wilts on the northern border of Cranborne Chase; Salisbury is some 13 miles to the N.N.E. (p. 29). The drawings of the chambered barrows are an interesting feature of Part I.

Mr. Burrows has based his descriptive notes on the earthworks, forming Part II, upon the pioneer work of Mr. G. B. Witts, who published his *Archæological Handbook of Gloucestershire*, together with a large map issued in separate covers, in 1883. It is a matter of regret that Mr. Burrows has not classified the Gloucestershire earthworks, as most recent writers on camps have done, in accordance with the scheme drawn up by the Earthworks Committee of the Congress of Archæological Societies. One is struck by the number of promontory camps in Gloucestershire; and one notes also that several of the entrenchments are of very small dimensions.

In reading the notes and comparing them with the drawings, one realizes the difficulties Mr. Burrows has had to contend with, not only in finding some of the lesser known entrenchments, but in determining what single view of each of them gave the best idea of its position, relative strength and special features. Generally speaking, the author has kept this main object well in view: moreover, it is evident that he has got a good eye for distance and has been careful to depict outlying camps, waterways and other items of topographical interest. Many of the entrenchments are considerably overgrown, and not a small proportion of them have suffered by ploughing, quarrying and other mutilation.

Pictorially, however, the book has one great defect, and that is the lack of plans and sections. There are few to be found in the volume, and, unfortunately, the drawings, accompanied by short and often inadequate descriptions, do not by themselves always give a clear conception of the form of the earthworks. But it must be readily admitted that it is a decided advantage to have the drawing of a camp facing its description. To have included a plan and section with the sketch on one page would have caused the sacrifice of much space in the text on the opposite page, unless the description of the entrenchment had been extended, and that might have been done to advantage in many cases. Conciseness has evidently been aimed at, but without having overburdened the several notes with minute dimensions and other details, they should, we think, have been sufficiently full to satisfy the needs of the working field-archæologist. It is evident that the descriptive notes have been regarded as being of secondary importance to the drawings; and this has rendered the work rather an amateurish production. The author apparently realised this, for he adds a chapter offering "some suggestions to the amateur" on the subject of making a superficial exploration of the local camps.

A much fuller description of the amphitheatre at "the Querns," Cirencester, would have been welcome; in form it bears a close resemblance to Maumbury Rings at Dorchester.

Mr. Burrows has given little information with regard to archæological remains found in the entrenchments. This is probably due, to some extent, to the fact that little scientific excavation has yet been carried out in connection with the camps of Gloucestershire. No reference, we notice, is made to the antiquities found at Solisbury Hill Camp, near Bath ("Little Solsbury," p. 128), and described and illustrated in *The Antiquary*, by W. G. Collins and T. C. Cantrill, Vol. XLV, pp. 326-331, 419-425 and 451-456; these specimens are exhibited in the Museum of the Institution at Bath. Mr. Burrows states that "394 sword-like iron blades" were found in Meon

Hill Camp (p. 112) and "120 iron blades" in Salmonsbury Camp, Bourton-on-the-Water (p. 140), but he does not identify them as being among the largest hoards of ancient British currency-bars found in this country. [See account and map of distribution of currency-bars, *The Glastonbury Lake Village*, Vol. II, pp. 395-403; also *Proc. Soc. Antiq. London*, Vol. XX, pp. 179-195; Vol. XXII, pp. 337-343; and Vol. XXVII, pp. 69-76 (where the Gloucestershire finds are specially dealt with)].

Part III deals with the Malvern fortresses, briefly described. The book contains several typographical errors, such as "internments" for "interments" on p. 166; and some of the spelling is rather quaint; for instance, "Ikenild" for "Icknield." Variants in the spelling of the names of the entrenchments are frequent, and are specially noticeable when comparing the titles of the drawings with the accompanying descriptions.

H. ST. GEORGE GRAY.

ANTHROPOLOGICAL NOTES.

On Wednesday, May 19, 1920, the Degree of Doctor of Letters (*honoris causa*) was conferred by the Vice-Chancellor of the University of Cambridge on the Abbé Henri Breuil. Professor of the Institute of Human Palaeontology at Paris.

Professor l'Abbé Breuil was presented by the Public Orator, Mr. T. R. Glover, M.A., who made the following oration:—

"De gentis humanae originibus multi antiquitus disputaverunt nec adhuc compositae sunt controversiae. Utrum simiis oriundi simus an angelis, ingens fuit rixa. Ossibus nonnullis inventis pithecanthropum quidam finxerunt,
monstrum horrendum, informe, ingens,

cui lumen non datum. Ex contrario hospes noster cavernas speluncasque Gallicas et Hispanas exploravit, proavorum domos nostrorum et picturis plenas invenit, ex quibus patefactum est ante multa annorum millia vel humanissimos fuisse. Ita linea usi sunt et colore, ita vitae studierunt, ut cervi depicti vel animum cerneret, dum respectat inhians, et crura movet defatigata. Elephanti primigenii dentes et capillos, equi nasum retusum, rhinocerotis lanam, et neverunt et pinxerunt. Abbatem ergo, qui gentem nostram in humanitatem vindicaverit, laeti salutamus.

"Duco ad vos virum admodum reverendum, HENRICUM EDWARDUM PROSPERUM BREUIL."

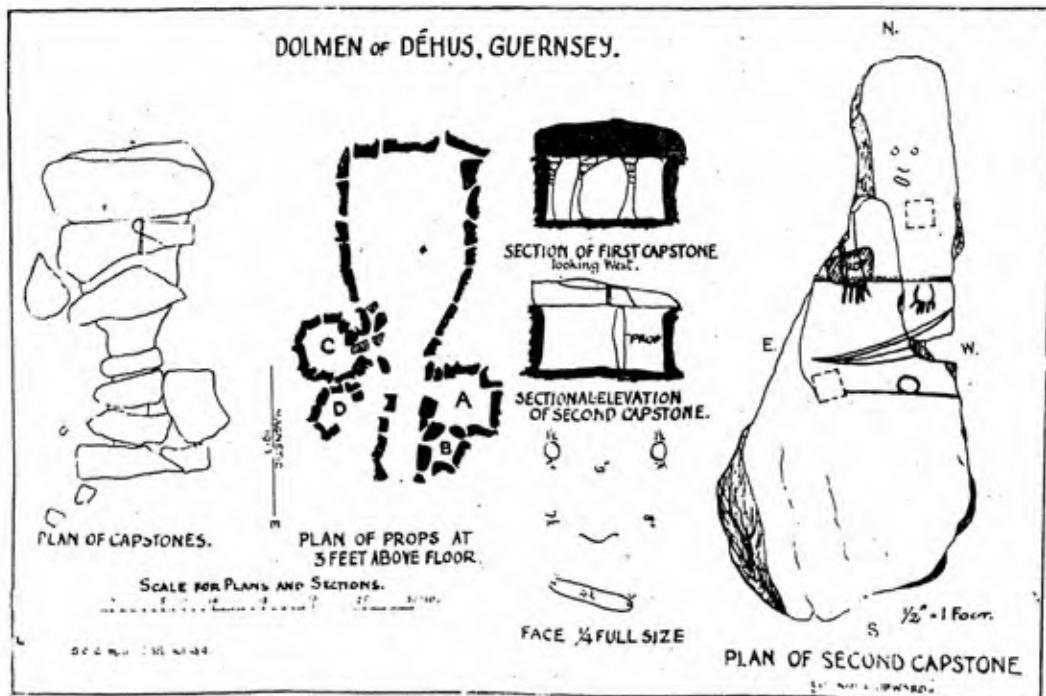
On Tuesday, June 15, 1920, the Degree of Doctor of Letters (*honoris causa*) was conferred by the Chancellor of the University of Cambridge on Sir James G. Frazer, D.C.L., LL.D., Litt.D.

In introducing Sir James George Frazer to the Chancellor, the Public Orator, Mr. T. R. Glover, M.A., referred to the *Golden Bough*, saying:—

"Pius ille Aeneas patrem apud mortuos quaesitus ramum aureum secum ferre jussus est. Nos quidem *Ramo Aureo* freti recentiore et, credo, ampliore (primo enim avolso non deficit alter), Orcum exploramus, sed adhuc nec Proserpinam vidimus nec Anchisen. Sed interim quot gentes adimus, quot barbarorum sacris intersumus, quot arcanis initiamur!"

Sir James Frazer was elected Fellow of the Royal Society on June 24, 1920, under the Statute governing special elections on the grounds of his having "rendered conspicuous service to the cause of Science."

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DOLMEN OF DÉHUS, GUERNSEY, BEFORE 1898.

ORIGINAL ARTICLES.

With Plate I—J.

Guernsey: Ethnography.

de Guérin.

Notes on the Recent Discovery of a Human Figure Sculptured on a Capstone of the Dolmen of Déhus, Guernsey. By Lt.-Col. **66**

T. W. M. de Guérin.

Until quite recently no sculptures had been observed on the stones of any of the dolmens of Guernsey, and it had been supposed that they were of an earlier date than the sculptured dolmens of Brittany. In the autumn of 1918, however, a careful examination of the dolmen of Déhus, situated at Paradis, in the parish of the Vale, Guernsey, led to the discovery of a sculptured human figure of considerable interest on the under-surface of the second capstone of the great central chamber.



FIG. 1.

The figure consists of a face and two hands with the outline of a portion of both arms. At a little distance beneath the hands is a crescent-shaped symbol, and a few inches below the latter is a small circle touching a narrow grooved line, which extends nearly right across the stone, and possibly represents the girdle so often found on French statue-menhirs. The face is represented by the mouth, a depression $4\frac{1}{2}$ inches long by $1\frac{1}{2}$ inches broad, hollowed out either by grinding with sand and water, or by scraping with a flint burin. The eyes are two circular holes, $1\frac{1}{2}$ inches in diameter, placed on either side of a small natural ridge in the stone which has been used to form the

nose. On the south side of the stone pillar, which supports the capstone in the centre of the chamber, are sculptured the two hands with the thumbs pointing inwards, and the outline of a portion of both arms. The right hand is represented by a straight grooved line from which spring the four fingers, four straight lines, with the thumb at an angle to them. From the base of the thumb a narrow grooved line extends to the edge of the capstone near the face, marking the inner line of the right arm, and two lines extend from the base of the little finger for a short distance to represent the outer line of the forearm. The left hand is represented with the fingers and thumb more outspread with no straight line at their base, and two short lines form the outline of the hand or forearm. At a little distance below the hands is the crescent-shaped design, 2 feet 10 inches in



FIG. 2.

length, formed of four slightly curved shallow grooves, meeting in a point near the centre of the capstone and extending to its western edge. The two lines nearest to the hands meet again in a point on the broken portion of the capstone. A few inches beneath this figure is a small circle five inches in diameter touching a straight grooved line.

The dolmen of Déhus is the second largest in Guernsey. It stands partially concealed in its mound, within a circle of large stones, 60 feet in diameter, many of which are still *in situ*. The great central chamber is 18 feet long by 11 feet wide by 6 feet 2 inches in height, under the western capstone, and it is entered by a gallery of access, 14 feet long, on each side of which are two small secondary chambers. It is covered by three large capstones, the western one being a large block of syenite 14 feet 6 inches long by 7 feet 6 inches wide and 3 feet

9 inches thick. The second capstone, on which are the sculptured figures, is nearly in the centre of the chamber, and is of rather smaller dimensions, 14 feet 6 inches long, 6 feet wide and 2 feet 9 inches thick. It is supported by an upright stone pillar placed a little to the north of the centre of the chamber. The northern half of the under surface of this capstone has a very smooth surface, and in the opinion of Major Carey Curtis, R.E., President of the Guernsey Society of Natural Science, appears as if it had been rubbed down with sand and water by neolithic man, leaving on its eastern edge a curved ridge with a rough surface a quarter of an inch above the smooth portion of the stone. When this part of the chamber was excavated by Mr. F. C. Lukis, F.S.A., in 1847, he found that a large portion of the northern end of this capstone had become detached and had fallen, at some very early period, into the chamber, where it was resting upon a mass



FIG. 3.—STATUE MENHIR, CÂTEL, GUERNSEY.

of stoney rubble that had fallen with it upon the neolithic deposit of bones and vases on the floor of the chamber. It was replaced in its original position in the year 1898, by Captain F. du B. Lukis and the Rev. G. E. Lee, F.S.A., and securely bound with wire ropes to the main portion of the capstone, which still rested on the stone pillar, and it was further supported by two oak posts as an additional security. It is on this detached fragment that the face, left hand and part of the crescent-shaped design are sculptured.

Anthropomorphic figures very similar to that of Déhus are found in France sculptured on the props of the late neolithic dolmens of the valleys of the Seine and Oise, and also of Collorgues in the department of Gard. Very similar figures are also found sculptured on the walls of the grottoes of Le Petit Morin, Marne, which, from the small copper beads found in them by the late Baron de Baye, are thought to date from the seneolithic period.* Later representations of this same

* Hubert, "Les perles de cuivre et la poterie dans les grottes de la vallée du Petit Morin. Institut Français d'Anthropologie, 1910," p. 62.

primitive divinity are the statue-menhirs of the departments of Aveyron, Le Gard, Le Tarn, Herault, and Bouches du Rhône, of which those of Saint Sernin, Aveyron (Fig. 1), and Les Maurels, Tarn (Fig. 2), are examples. These are thought by M. J. Déchelette to be of the first Bronze Age.* In Guernsey the representation of this divinity followed the same evolution from sculptured slab to statue-menhir as in south-eastern France, for no less than two statue-menhirs are still in existence in the island. One, a very rude statue-menhir, was discovered buried beneath the pavement at the entrance of the chancel of the parish church of St. Mary du Castel during its restoration in the year 1878 (Fig. 3). It is now in the churchyard under a tree to the N.W. of the church. It is a rude natural boulder roughly shaped into human form, only the head, shoulders and two female breasts being represented. Round the top of the head is a narrow raised band, and a long slightly raised necklace extends from it to the two projecting breasts. No attempt seems to have been made to represent the features of the face, but the surface of the stone for some distance below the band, where it naturally should have appeared, has been carefully rubbed down to a smooth surface, as if prepared for some object. At the back of the statue is a slightly raised band across the shoulders $1\frac{1}{4}$ inches broad. This statue-menhir must have been still an object of worship on the introduction of Christianity into Guernsey in the sixth century, when it was evidently thrown down and buried beneath the pavement of the sanctuary of the New Faith, erected undoubtedly on the site of an old heathen place of worship. At the same time no doubt it was partly defaced, as the right breast has been broken off.

There is no doubt that the cult of the divinity, represented by the sculptured figure of the dolmen of Déhus and the statue-menhir of the Castel, lasted on for long ages in Guernsey, for the second statue-menhir, which now stands as a gate-post between the two gates of the churchyard to the south of the church of St. Martin, is of very much later date than that of the Castel (Fig. 4). It is one of the largest and best preserved statue-menhirs in existence, far surpassing in size and execution those of south-eastern France. An attempt has been made by the sculptor to model the face by making the chin project. Around the forehead and extending down the left side of the face is a row of 11 small circles of discs, and round the neck are nine raised pendants, three on the left shoulder and six in front. None are visible on the right shoulder. These may be intended to represent a torque, or, as has been suggested, the folds of a hood or cloak. At the back of the statue there is a deep groove 2 feet 11 inches in length, with an extension on the upper part of its left side, which may be intended to represent another fold of the cloak. Unfortunately, a churchwarden in the nineteenth century thought fit to fill up this groove with cement to within $2\frac{1}{2}$ inches of the top, but the weathered



FIG. 4.

* Déchelette, *Manuel*, Vol. I, pp. 594-603; also Vol. II, p. 487.

appearance of the exposed portion shows that it is of the same date as the rest of the sculptures. A few inches below this groove, about 17 inches above the ground, where the surface of the stone is least weathered, there are traces of a slightly raised band, 1½ inches wide, which probably is intended to represent a girdle. There are also two short curved lines below the shoulders in the front of the statue about on a line with the two projecting breasts. The statue stood in the churchyard, to the south of the church, until the middle of the last century, when it was removed to its present position. At its foot was a flat stone, which has disappeared, on which were two cup-like hollows. It was still an object of superstitious veneration at the beginning of the nineteenth century. It was thought lucky to make an oblation of a few drops of wine or spirits, or to strew a few flowers secretly at the foot of "*la Gran' mere du chimquière*," as the statue was called in the old Guernsey *patois*.

There is an important point to be noted with regard to the figure sculptured on the capstone of the dolmen of Déhus. The inner line of the right arm can be traced continuing right over the top of the stone pillar in the centre of the chamber, through an opening on the eastern side where the stone does not rest on the pillar. It is therefore evident from this fact that the stone was sculptured before it was placed in position, and, as the great central chamber must have been the first structure to be erected in the centre of the circle, this has an important bearing on the date of the erection of the dolmen. It, therefore, cannot have been constructed until the very end of the neolithic period, at the verge of the first Bronze Age, when, according to M. Déchelette and other leading archaeologists, the symbols of the cult of this primitive divinity first appear in France.* We have also evidence from Mr. F. C. Lukis's account† of his excavations of the dolmen of Déhus of its long-continued use as a place of burial, and of the erection of its four secondary chambers at a later date than the great central chamber. He was fortunate in finding the neolithic deposit in an undisturbed condition in the great central chamber round the stone pillar, and under the fallen fragment of the second capstone. Among the many vases he discovered here were two large calciform vases (zoned beakers), in a nearly perfect condition, and a portion of a third. In the secondary chamber A, to the north of the gallery, he found a large portion of the base of this latter vase, thrown in on the top of the soil and limpet shells covering the skeletal remains. Fragments of the same vase were found strewn about in the soil of the gallery, and others were found mixed with the deposit of human bones and vases on the floor of the secondary chamber C to the south of the gallery. It was therefore evident that these two chambers had been erected after, perhaps long after, the interment represented by this calciform vase. Further proof of their later date is given by Mr. Lukis, who states that the forms of the vases he found in these secondary chambers differed from those he had found in the central chamber. They all had round bases and were without ornamentation, exactly similar to those he had found in Le Tombeau du Grand Sarrazin, a small cist a short distance from the dolmen of Déhus, while those from the central chamber had all flat bases and were of a coarser and thicker paste. He also notes that the sixth prop from the entrance on the south side, which had supported the fourth capstone, had been skilfully moved from its original position, and had been partly turned round so as to make a narrow passage to give entrance from the gallery into the secondary chamber C; a work, when we consider the weight of the capstone resting on the prop, that bears evidence to the engineering skill of neolithic man.

* Déchelette, *Manuel*, Vol. I, p. 583.

† MS. Notes in the Lukis Museum, Guernsey.

The two other secondary chambers, B and D, nearest to the entrance of the gallery seem to have been the latest constructed of all. In B were found the two kneeling skeletons, one facing east and the other west, described by Mr. F. C. Lukis in an article in the Journal of the British Archaeological Association (Vol. I, pp. 25-29); no vases or other objects were found with them. In the other chamber, D, he noted a similar alteration in the burial customs of the people using this portion of the dolmen, while in the other parts of the dolmen at least one vase and other objects had been found with each skeletal deposit. He tells us that in chamber D he found no less than three deposits of skeletal remains, each resting upon a rude pavement of flat sea-worn stones, and covered with a thick layer of limpet shells, but with the exception of a bone dagger and a large bowl on the floor of the chamber, no other objects were discovered. The bowl was found in an inverted position resting on three small angular blocks of stone, and beneath it were a few human bones. Around it were three skeletons lying on their sides in a crouched position. In the two upper layers were masses of human bones heaped together without order as if the bodies had been stripped of flesh before burial in the dolmen.

These facts point to the use of the dolmen as a place of burial over a long period, a period long enough to have allowed of the introduction of a new form of pottery, and an alteration in burial customs. As the human figure sculptured on the capstone proves that the dolmen was erected, at earliest, very late in the neolithic period, it is therefore very probable that it was continued to be used in the first Bronze Age. This would seem to be confirmed by the discovery by Mr. Lukis of a copper knife-dagger, and two small copper, or bronze, rings in the dolmen. The dagger, he tells us, was found lying on the top of a mass of rubble that had been disturbed on the north side of the great central chamber. This fact led him to consider it a comparatively recent intrusion into a neolithic structure. However, in the light of our present knowledge of the late date of the erection of the dolmen of Déhus, and the fact that this dagger is identical in form to a copper knife-dagger found in the dolmen du Terrier du Cabut, commune d'Anglade, Gironde,* and to others also found in dolmens in the south of France, I think it is evident that it was deposited with some interment in the dolmen early in the first Bronze Age.

The question suggests itself, how did the cult of this divinity reach such an out-of-the-way locality as Guernsey at the end of the neolithic period? There seems to be two possible routes by which it might have come; one from the Seine valley by Normandy and the other from the south by Brittany. The latter seems the most probable, as there is a close affinity between the neolithic culture of Guernsey and that of Brittany. We find the same forms of vases, the same pattern of their ornamentation and also the forms of stone celts. Further, traces of trade intercourse are evident by the numerous polished stone celts and other objects, found in Guernsey of jadeite, fibriolite, serpentine and many other stones not found in the Channel Islands. These show the existence of intercourse with the mainland in neolithic times. The continuance of this intercourse in the first Bronze Age is proved by the knife-dagger and copper rings found in the dolmen of Déhus, also by a small flat copper celt, of very early form, found at La Hougue du Pommier, Castel, Guernsey, and by another large copper celt (*hache plate*) found in Little Sark, all typical of this period. Déchelette† refers to the evidence of a trade route along the western coasts of France, from Spain to the north, in neolithic times, and particularly in the first Bronze, as the way along which the influences of the

* Déchelette, *Manuel*, Vol. II, part 1, fig. 57, No. 4, p. 190.

* *Ibid.*, Vol. I, p. 626.

higher culture of the Mediterranean Basin reached Brittany and Western France, and from thence the southern counties of England. He also traces the cult of this primitive divinity back through Spain to an Aegean prototype. It is therefore by this route along the western coast of France, rather than from the Seine valley, that the cult of the goddess represented by the sculptured figure of the dolmen of Déhus and the two statue-menhirs in all probability reached Guernsey.

In conclusion I have to thank my friends Dr. Fleure and Major Carey Curtis for their kind assistance in furnishing me with plans, etc. T. W. M. DE GUÉRIN.

Madagascar and East Africa: Canoes.

Hornell.

The Common Origin of the Outrigger Canoes of Madagascar and East Africa. By James Hornell. **67**

Since writing the note on the affinities of East African Outrigger Canoes (MAN, 1919, 55), considerable additional information and several photographs of the corresponding Madagascarene craft have reached me. From these it is abundantly clear that the dominant Madagascar form is so closely related to that of North Java, described in the article named, that we may accept them as identical. It follows then that (a) the East African forms are all varieties from this Madagascar model; that (b) the vertical stanchion design of African outriggers is more primitive than the oblique, and that (c) the resemblance of this oblique form of stanchion to certain widely distributed Indonesian types of oblique connecting joints (modified stanchions) in Bali, the Celebes and the Moluccas, is an instance of convergence and is of independent origin.

The Madagascar form referred to is that in common use on the West Coast; it is usually of the single type as in North Java, with two straight booms, each

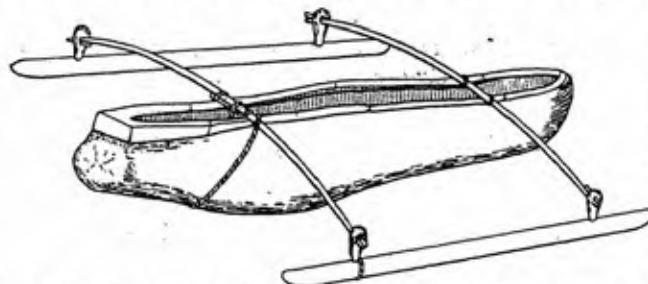


FIG. 1.—A double outrigger from Cap Ste. Marie, Madagascar.
(From a photo by Monsieur G. Grandidier.)

attached to the float by means of an upright peg stanchion. This stanchion is frequently somewhat flattened laterally as in the Javanese model (MAN, 1919, 55, Figs. 1 and 2); in some it is roughly cylindrical. The float is usually a more or less cylindrical pole; the ends may be truncate or, more

usually, worked into a curved form like the bow of the canoe itself.

No outrigger canoes are found on the East Coast of Madagascar, where plank-built boats are in general use; it is chiefly among the Sakalava of the West Coast that the outrigger survives. These outriggers are generally single or pseudo-double; true double outriggers, according to Monsieur G. Grandidier, to whom I am indebted for many of my facts, are found at the present day only at Nossi Voalavo at the mouth of the Sambao, high up on the west coast, and again in the south, in the neighbourhood of Cap Sté. Marie. Fig. 1 of a canoe from the latter locality is drawn from one of M. Grandidier's photographs. The hull is an exceedingly roughly-hewn dugout; either the builders had little skill or grudged the time and labour necessary to shape it to the graceful form seen elsewhere on the Madagascar coastline. The rude outlines of the tree trunk remain and the ends are roughly truncate and clumsy, without attempt to form a sharp cut-water. The upper edge of the sides is irregular, filled up where necessary by

a rough gunwale, pegged on. The two booms are slender poles projecting equally on each side; they connect with a cylindrical boom on either side by means of two flat peg-stanchions as shown in the figure.

To the northward, on the West Coast, the double outrigger has practically died out, the canoes now existing being almost all provided with a single boom. But even these show distinct traces of being derived from a double outrigger. The figure (Fig. 2) of one from Morondava is particularly enlightening and may be considered a transitional form. In this, an elegantly shaped dugout has two long pole booms projecting to the same extent on each side, but a float is attached to the ends of the booms by the usual peg joints

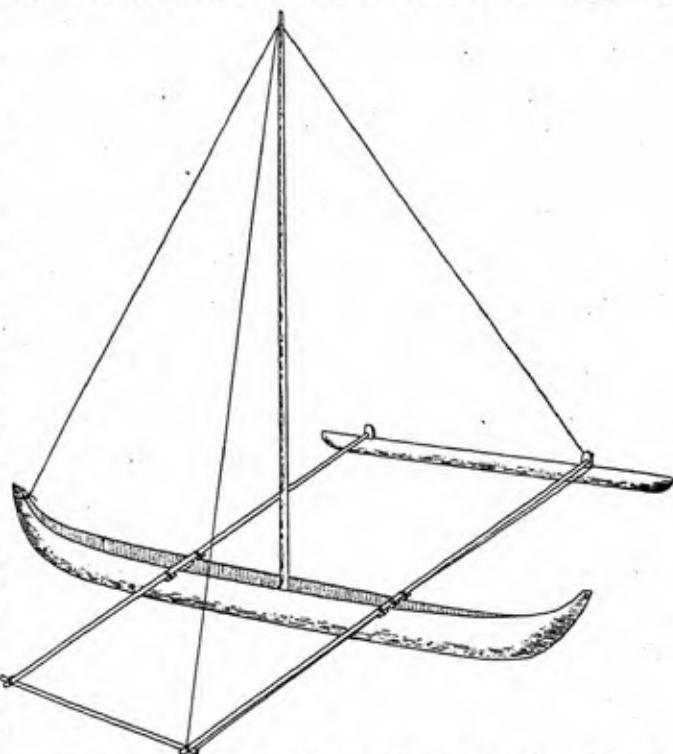


FIG. 2.—Transitional variety of outrigger from Morondava, west coast of Madagascar. It shows a true pegged-on float on one side only; on the other, it is replaced by a light bamboo, lashed directly to the distal ends of the booms. (From a photo by Monsieur G. Grandidier.)

(here very short) on one side only; on the other a light pole connects the ends of the booms in place of a float. This pole is tied directly to the booms where it crosses them. A tall light mast is stepped amidships and I am inclined to think that this canoe can sail indifferently either end forward, as is the custom with the single outrigger canoes of the Sinhalese. A stage further in the evolution of the single outrigger is seen in the figure of a canoe from the Bay

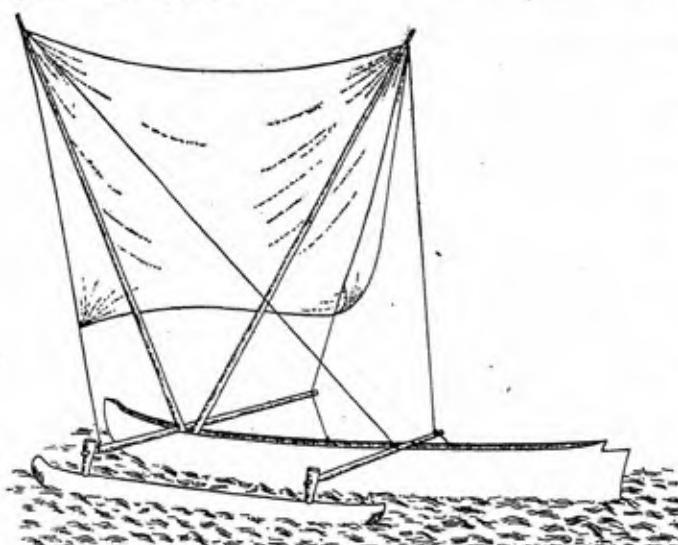


FIG. 3.—A single outrigger from the Bay of St. Augustin, west coast of Madagascar. (From a photo by Monsieur G. Grandidier.)

of St. Augustin (Fig. 3). In this the port outrigger frame alone remains intact;

on the starboard side, vestiges of the outrigger framework persist in the projecting ends of the two booms, which are used not for any counterpoise purpose, but merely as handy points of attachment for the stays leading to the double spritsail.

The change from the double to the single form appears to have taken place in comparatively recent times. As late as 1595 and 1644, Houtman and Richard Boothby saw numerous double outriggers at St. Augustin where now there are none but single ones, and Macé Descartes in 1846 does not remark on the double form being then specially rare on the West Coast as they certainly are now. Descartes says : " Les pirogues de la côte de l'ouest, sont beaucoup plus petites " que les précédentes (côte est), mais aussi légères et aussi commodes pour " franchir les barres, elles sont aussi faites d'un seul arbre. Comme elles sont trop

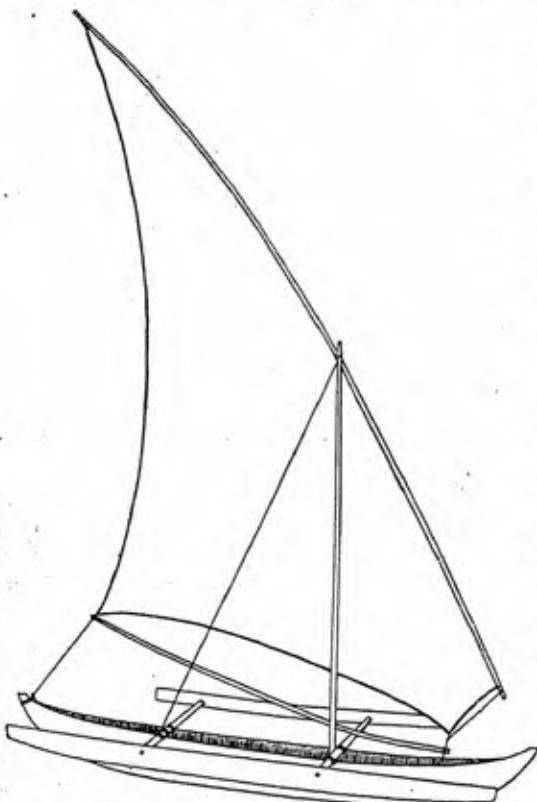
" étroites pour tenir à flot, elles sont " soutenues *par un ou deux* de ces " appareils si souvent représentés " dans les paysages des îles de la " Polynésie."

Generally the sail form used is a squarish double spritsail as shown in Fig. 3 of a single outrigger from St. Augustin. This I consider is probably the form of sail properly characteristic of one type at least of the Malagasy outriggers—a primitive or indigenous form. It is noteworthy that it is the kind of sail regularly and exclusively employed by all Sinhalese outrigger fishing-boats (Sinh., *oruwa*). The ingenious device of having 12 to 14 stepholes in a block of wood in the bottom of the boat, whereby the lower ends of the two mast-sprits can be stepped at varying distances apart, according to how close hauled or otherwise the boat is sailing, is not known in Ceylon.

In the north-west of Madagascar and in the Comoro Islands, the Arab lateen sail has ousted the double sprit (Fig. 4), and this Arab influence is further emphasized on the East African coast.

FIG. 4.—Pseudo-double outrigger canoe, with direct boom and float attachment, west coast of Madagascar. (From a model in the Oceanographic Museum, Monaco.)

In the Comoro Islands the double canoe has also nearly died out, its place taken by the single form, as on the west coast of Madagascar. M. Barbier, private secretary to H.E. the Governor of French India, in a letter to the British Consul at Pondicherry, states that " the natives prefer the outrigger canoe for coastal navigation ; " they are handy for crossing the bars which exist all along the coast and use them " for fishing at sea and even for fairly long journeys between the islands. They " are generally six to eight metres long, sometimes more, but I have not seen any " over 10 metres. Their width is from 50 to 60 centimetres on the average and " 70 to 80 centimetres at most. They are propelled by one or several men with the " aid of paddles with very short handles, which also are used to steer the boat. " There is no fixed rudder. The hull is generally made of the trunk of a large tree



" hollowed out by fire. Some, however, are made of planks, and others, smaller, " of bark stitched together. Two poles, bamboos generally, support the float, placed " at a distance of 2 to 2·50 metres from the gunwale which the poles pierce " and then cross the well of the canoe to pass also through the other side. The " holes through which the poles pass are generally caulked. In smaller canoes the " poles are occasionally made fast on the top of the gunwales." He adds that nearly all the outrigger canoes used in the Comoro Islands have a single boom, and although double ones exist, they are quite the exception. The peg stanchions are placed usually at right angles to the boom as in the Madagascar varieties. The large canoes have thwarts and the fore part is decked; the mast is fixed well forward, carrying a lateen sail. The small canoes also carry mast and sail in some instances; the fore end is sharply curved; they are from 60 to 70 centimetres deep, with a width generally just sufficient to admit a man squatting down.

The foregoing is all that is requisite to provide the necessary evidence for the correlation of the Madagascarene ordinary form of outrigger directly with that of north central Java, and to show that the oblique forms of perforated stanchion seen in the Mombasa and Zanzibar varieties of East African outriggers are derived from this Madagascarene form through the intermediary of the Lamu variety having vertical stanchions. In their consistently double form, the African varieties have retained a primitive structure almost entirely lost in present-day Madagascar outriggers.

In view of the above, it is noteworthy to find that direct attachment of the two booms appears also to be represented on the west coast of Madagascar. My authority for this is a model in the Oceanographic Museum at Monaco, from the locality named. In this the end of each boom is whittled down to rather less than half its diameter and inserted in a hole bored through the upper section of the boom (Figs. 4 and 5a). The booms are unequal in size; that on the starboard side is about equal in length with the hull of the dugout, whereas its equivalent on the port side is considerably shorter; it is also proportionately smaller in its other dimensions. The dugout is gracefully shaped, with well-marked upturned prow. In common with all other Madagascar outriggers, there is no fixed rudder, steering being done by means of a paddle. A mast is stepped well forward, and immediately aft of the forward boom. The sail is a true Arab lateen with a light bamboo boom along the lower margin.

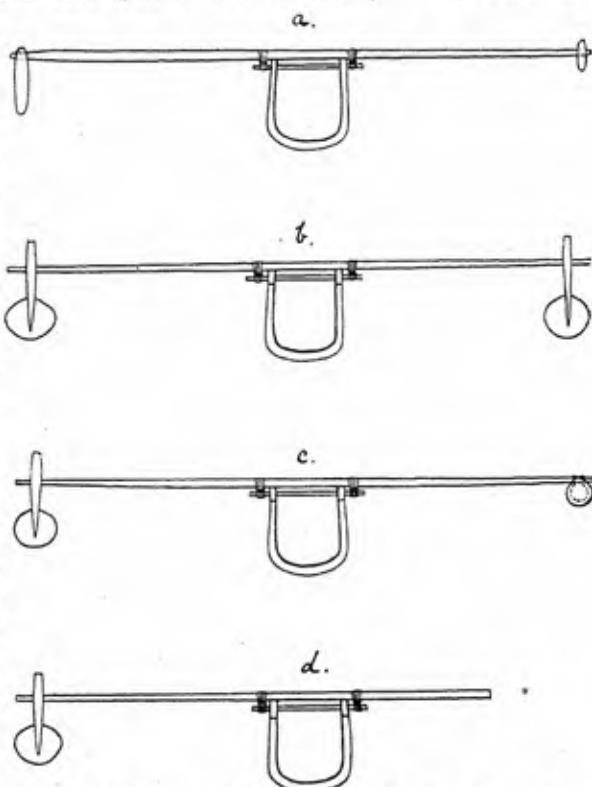


FIG. 5.—Diagrams of four varieties of Madagascar outrigger design. *a* shows direct attachment of the booms to the floats, the float on one side being vestigial; *b*, *c* and *d* show a perfect transitional series from the double to the single form. (Original.)
N.B.—The method of lashing the booms to the thwarts varies; sometimes the method seen in Fig. 6*c* is employed and sometimes the thwart does not pierce the sides of the canoe.

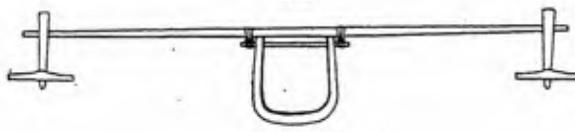
Monsieur Grandidier has kindly supplied me with a number of Malagasy terms for the outrigger and its different parts. They are as follows:—

Lakanà, a boat or canoe; *lakam-piarà*, an outrigger canoe “avec banc”; *lakam-jilo*, an outrigger canoe “ayant mât et vergue à la mode des boutres”; *fanarinà*, outrigger float (litt. “that which maintains the equilibrium,” from the root *arimà*, balance or “*aplomb*”), or *fangarahana* (litt. “that which is always covered,” i.e., by the water); *varonà* or *varonandukanà*, the outrigger booms; *tatikà*, the connecting stanchion; *firanà*, prow; *fivè* or *fivoy*, paddles; *lopondrà*, punting pole; *havitrà*, boat hook (from Malay *kawit*, *fide* Grandidier); *dimà*, wooden bailer; *lay*, sail.

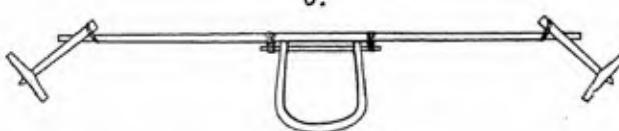
Macé Descartes gives in addition:—

Lakan'-drafitch' or *lakam'-pafan'*, for a plank-built boat and *sakan'* (“width” *fide* Descartes) for a thwart or bench across the boat; *sakan'-poulan'* for the aftmost one where the steersman sits. *Sukāna* and *sukwan* are respectively the Tamil and the Arabic terms respectively for rudder; the resemblance to *sakan'* is probably only a coincidence; none of the other terms seem akin to any Tamil or Arabic words of related significance; comparison with Javanese and other Indonesian languages is requisite.

a..



b.



c.

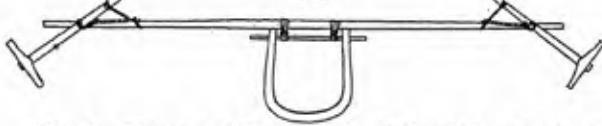


FIG. 5.—Diagrams of three varieties of East African outrigger design; a, the Lamu form; b, the Zanzibar form; c, the Dar-es-Salaam and Mombasa type. (Original.)

reduced to a light bamboo pole lashed directly to the underside of the booms.

Of African outriggers, Figs. 6a to 6c show the chief variations. In all, a flat board replaces the pole float characteristic of the Madagascar forms. Fig. 6a (Lamu variety) having vertical stanchions approaches most closely to the Madagascar form, hence the conclusion in my former paper (*loc. cit.*) that the oblique form was probably the one current at the time outriggers arrived in that island, is erroneous.

We are justified in view of the foregoing evidence, and that contained in my first paper, in concluding that the present-day varieties of outrigger canoe known in Madagascar and East Africa are derived directly from Javanese types. The mutual resemblances are so close that there can be no reasonable doubt regarding this conclusion. It appears highly probable that it was from Java that many of the Indonesian immigrants arrived who colonized Madagascar, and that this event occurred before Indians settled in Java in the early centuries of our era, because few Sanscrit

words are found in the Malagasy dialects, whereas in Javanese many are incorporated, introduced by the activities of Indian Buddhist and Brahman missionaries, who employed Sanscrit freely in their religious services.

JAMES HORNELL.

Obituary.

Ridolfo Livi (1856-1920).

In recording the death of Major-General Ridolfo Livi (on April 12, 1920) the Royal Anthropological Institute deplores the loss of one of its most distinguished honorary Fellows. His name is familiar to all who study anthropometry, and his character endeared him to those who enjoyed the pleasure and privilege of personal acquaintance.

Nearly a quarter of a century has elapsed since the publication of his great work.* Since that publication the work of Livi has had one outstanding association, only describable by the word monumental. And thus to refer to the *Antropometria militare* is right and equitable without prejudice to its rivals in other countries than Italy.

The work is monumental in more senses than one. Naturally the vastness of the programme is impressive. But not less exemplary are the clarity of the scheme and the rigour of its execution in detail.

Again, the value of the *Antropometria militare* is far from being solely academic. In its inception purely military, this aspect alone would demand much space for review. To-day, as in the past, the relation of physical development to military fitness presents claims that cannot be ignored. Though the actual criteria may be changed, the method of treatment will not vary. And it is exactly in some of the subdivisions of that method that we shall find the first steps of an important advance. For prominent among those divisions are the categories of physical characters and development according to age, locality (in which altitude of domicile is included), and occupation. And the advance must be made by way of extension from the army, i.e., the male population of military age, to the whole population of both sexes. To-day the work of Livi is a monument, but it also provides a massive foundation for an even greater superstructure.

Of Livi's other publications (*vide* the list appended), two may be selected for special notice. The earlier of these, viz., a Manual of Anthropometry, was reviewed in the *Journal of the Anthropological Institute* [Vol. XXIX, New Series, Vol. II, 3, 4, Nov.-Dec. 1899, pp. 324 *et seq.*], and its scope and originality were duly recognised. The other publication is in two parts, and it deals with the subject of domestic slavery in Italy during the Mediæval Epoch. The precision of the records utilised by Livi, and the revelation of the number and variety of sources whence slaves were drawn, confer high distinction on these researches. The appendix to this notice will show that since they were published in 1907 and 1908 the investigation had been extended, and that their publication in an enlarged form is still to be looked for.

* *Antropometria militare*. Rome, 1896-98. Review in the *Journal of the Anthropological Institute*, August, 1896 (p. 73), by A. H. Keane.

Duckworth.

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At the time of his death, Livi had attained the age of 63 years. His degrees in medicine and surgery were taken in 1878, when he entered the army. His active service included the African Campaign of 1887-88 as well as the recent war. At the time of his death he held the rank of Major-General, to which he was promoted in 1917. He was editor-in-chief of the *Giornale di Medicina Militaire* from 1890 until 1912, and his own contributions to its pages reveal a wide interest in sanitation.

The list of titles and academic and other distinctions, together with references to publications appended to this notice, has been contributed by Signora Livi, to whom, in her bereavement, the Institute will desire to express its respectful sympathy.

W. H. DUCKWORTH.

TITOLI SCIENTIFICA ED ACCADEMICI.

- 1888. Corresponding Member of the *Société d'Anthropologie de Paris*.
- 1889. Honorary Fellow of the *Anthropological Institute of Great Britain and Ireland*.
- 1891-92. Vice-President of the *Biennio* of the *Società Italiana di Antropologia* (Florence).
- 1893. Foundation Member of the *Società Romana di Antropologia*.
- 1894. Associated Member of the *Société d'Anthropologie de Paris*.
- 1896. Awarded the Godard prize and a silver medal by the above society for the works *Sulla statura degli Italiani* and *L'indice cefalico degli Italiani*.
- 1896. Corresponding Member of the *Reale Accademia di Medicina* of Madrid.
- 1896. Member of the *Société Française d'Hygiène*, Paris.
- 1897. Diploma prize and medal of the scientific section at the International Exhibition, Brussels.
- 1897. Entrusted by the Ministry of the Interior with the investigation and research preliminary to the institution of an Anthropometric service for the identification of criminals.
- 1897. Member of the *Istituto internazionale di Statistica*.
- 1897. Member of the *Société d'anthropologie de Bruxelles*.
- 1897-98. Vice-President of the *biennio* of the *Società Italiana di Antropologia* (Florence).
- 1900. Delegate of the Italian Government at the International Commission on the nomenclature of causes of death (Paris, 1900.)
- 1903. Member of the Swedish Anthropological and Geographical Society (Stockholm).
- 1903-04. Vice-President of the *biennio* and of the *Società Italiana d'Antropologia* (Florence).
- 1903-04. President of the *biennio* of the *Società romana di Antropologia*.
- 1907. Member of the *Società Italiana per il Progresso delle Scienze*.
- 1909. Qualified to give instruction in anthropology at the *Università di Roma*.
- 1913. Hon. Associate of the *Deutsche Gesellschaft für Anthropologie, Ethnologie und Urgeschichte*.
- 1913. Member of the *Consiglio Superiore di Statistica* (attached to the *Ministerio di Agricoltura, Industria e Commercio*).
- 1915. President of the *Società Italiana di Antropologia* (Florence).
- 1919. Member of the *Società Italiana di gentica ed eugenica*.

PUBBLICAZIONI.

1. Il morbo nell'esercito ed in particolare di una epidemia dominata nel presidio di Firenze nel 1880. Estratto dal giornale di medicina militare 1882—Roma, Voghera Carlo 1882, pag. 31.

2. Sulla statura degli Italiani. In Archivio per l'Antropologia e l'Etnologia, Vol. XIII°, 1883, pag. 46, con due tavole.
3. Sulla statura degli Italiani. Studio statistico antropologico. Firenze, Tipi dell' arte della Stampa, 1884, pag. 116, e 3 tavole.*
4. L'indice céfalico degli italiani. Firenze, Tipografia dell' arte della Stampa 1886, pag. 84, e 2 tavole.*
5. Sur la manière de calculer les indices en Anthropologie. Lettera al Direttore dell' "Anthropologie" anno 1887.
6. Sullo sviluppo del dente del giudizio. Estratto dagli Atti della Società Romana di Antropologia, Vol. 1, fasc. 2°, 1894. Torino, Stab° tipografico Pietro Bruno, 1894.
7. Contributo della geografia antropologica d'Italia. Carte della distribuzione dei biondi e dei bruni. Estratto dal l'Archivio per l'Antropologia e l'Etnologia, Vol. XXIV°, fasc. 2° 1894, pag. 20 e 2 carte.
8. Saggio dei risultati antropometrici ottenuti dallo spoglio dei fogli sanitari della classe 1859/63 Presentato in omaggio ai membri della XIV^a sezione dell' XI^o congresso medico internazionale. Roma, C. Voghera, 1894, pag. 48, e 6 carte.
9. Le malattie veneree secondo i mesi. Nota demografica. Estratto dal Giornale medico del R° Esercito e della R° Marina 1896, pag. 22 1 tavola.
10. Anthropologie de la France, Dordogne, Charente, Corrèze, Haute Vienne, par R. Collignon (articolo biblio grafico) Estratto dagli atti della Società Romana d'Antropologia, Vol. 2, fasc. 2°, 1895, pag. 6.
11. Sulla interpretazione delle curve seriali in antropometria (Estratto dagli Atti della Società Romana di antropologia), Vol. III, fasc. 1°, 1895, pag. 6.
12. Geografia orografia della statura e del colore degli occhi e dei capelli in Italia. Estratto dall' Archivio per l' Antropologia e l'Etnologia, Vol. XXVI°, fasc. 1°, 1896. Firenze Tip. Landi, 1896.
13. Antropometria militare. Risultati ottenuti dallo spoglio dei fogli sanitari dei militari delle classi 1859-63 (2 volumi e un atlante).
 - (1° Volume) *Parte prima*.—Dati antropologici ed etnografici. Roma, presso il giornale medico del R° Esercito, 1896, pag. 609.
 - (2° Volume) *Parte seconda*.—Dati demografici e biologici. Roma, presso il giornale medico del R°, Esercito, 1904, pag. viii+409 con 8 tavole grafiche.
 - Atlante della geografia antropologica d'Italia*. Roma presso il giornale medico del R° Esercito, 1896 (23 tavole e carte).
14. Essai d'Anthropométrie militaire. Bulletin de l'Instit. Intern. de Statistique, 1898.
15. Saggio di geografia del militarismo in Italia. Estratto dalla Riforma sociale, fasc. 6°, anno IV, Vol. VII°, seconda serie, Torino Roux Frassati e C°, 1897, pag. 12.
16. Dallo sviluppo del corpo (statura e perimetro toracico) in rapporto con la professione e colla condizione sociale. Roma, Voghera, 1897, pag. 40 e 5 tavole.
17. La distribuzione geografica dei caratteri anthropologici in Italia. Estratto dalla Rivista Ital. di Sociologia. Anno II, fasc. IV°. Luglio 1898, Scansano Tip. degli Olmi, 1898, pag. 19.
18. L'indice ponderale o rapporto tra la statura e il peso. Estratto dagli Atti della Società Romana di Antropologia. Vol. V°, fasc. II°. Lanciano, 1898, pag. 30.
19. L'indice póndérat ou rapport entre la taille et le poids (traduzione del precedente lavoro). In Archives Italiennes de Biologie, Ton. XXXII, fasc. II. Torino, 1899.

* Publications awarded the Godard prize of the *Société d'Anthropologie de Paris*.

20. La vaccinazione nell' esercito e l'antivaccinismo. Estratto dal Giornale medico del R° Esercito. Gennaio—febbraio, 1899, pag. 45.
21. La vaccinazione nell' esercito e l'antivaccinismo seconda ed ultima edizione. Roma, Enrico Voghera, 1899, pag. 83.
22. La vaccination et la variole dans l'armée italienne. Extrait de la Revue d'Hygiène. Mars, 1899. Paris, Masson et Cie, 1899, pag. 22.
23. Pocken und Impfung in der italienischen Armée. Separatabdruck aus der Hygienischen Rundschau, 1899, No. 12, pag. 14.
24. Taille et périmètre thoracique des militaires en rapport avec les professions. Comptes rendus du XII. Congrès international de Médecine Moscou. Août, 1897. Moscou, Soc. de l'Imprim. S. P. Yakovlev, 1900.
25. Antropometria (Metodologia antropometrica. Alcune leggi antropometriche—Identificazione antropometrica—Tavole di calcoli fatti) Milano. Hoepli, 1900, pag. 237, con. 33 incisioni.
26. Taille et professions (Comunicazione al Congresso internazionale di demografia di Parigi, 1900).
27. Des Moyens par lesquels l'armée peut contribuer a l'avancement de la demographie (Comunicazione id. id. 1900).
28. Il primo cinquantenario di vita del giornale medico del R° Esercito. Estratto dal Giornale medico del R° Esercito. Gennaio, 1903. Roma, E. Voghera, 1903, pag. 10.
29. Enquête anthropologique et sanitaire sur l'armée italienne. Extrait des Comptes rendus de l'association française pour l'avancement des sciences. Congrès de Cherbourg, Paris. Secrétariat de l'Association, 1905, pag. 8.
30. Misurando e rimisurando. Note di antropometria militare. Estratto dalla Rivista Militare Italiana. Dispensa IX Anno, 1905. Roma, E. Voghera, 1905, pag. 22.
31. La condizione sociale e lo sviluppo fisico. Estratto dalla Rivista Italiana di Sociologia anno IX°, fasc. V-VI, dicembre 1905. Scansano. Tip. Ed. degli Olli, 1905, pag. 32.
32. Per Cesare Lombroso (Nota commemorativa) Giornale di medicina del R° Esercito, Aprile, 1906.
33. La necessità della ginnistica dimostrata dalla bilancia e dal metro. Nella Rivista dell' Audax. 1907.
34. La schiavitù medioevale e la sua influenza sui caratteri antropologici degli italiani. Estratto dallo Rivista Italiana di Sociologia. Anno XI°, fasc. IV-V, 1907, pag. 27.
35. L'esclavage domestique au moyens age et son importance en anthropologie. Extrait des Bulletins et Mémoires de la société d'anthropologie de Paris. Jubilé du cinquantenaire. Pagine 11.
36. Sulla causa del destrismo e mancinismo. Estratto dagli atti della società Romana di antropologia. Volume XIV°, fascicolo 1°. Roma, 1908.
37. Una relazione economico-politica sulla città e stato di Siene alla fine del secolo XVII. Estratto del Bullettino Senese di Storia Patria. Anno XV°, fascicolo II°, 1908. Siena, L. Lazzeri, 1908, pag. 20.
38. La schiavitù domestica in Italia nel Medio Evo e dopo. Comunicazione fatta alla Sezione di Antropologia ed Etnologia della seconda riunione della Società Italiana per il progresso delle scienze. Firenze, Ottobre, 1908, Estratto dall' Archivio per l'Antropologia et l'Etnologia. Vol. 38°, fasc. III°, 1908, pag. 14.
39. Antropologia nei suoi rapporti con la medicina sociale. Milano, Dott. E. Vallardi, 1910, pag. x + 356.

40. Sulla utilità dei minima antropometrici nella scelta del soldato. Estratto dal Giornale di Medicina militare. Aprile, 1911. Roma, E. Voghera, 1911, pag. 15.
41. Über den Nutzen anthropometrischen Grenzwerte für die Assentierung. Separatabdruck aus "der Militärarzt" No. 1, 1911. Wien, Moritz Berles, 1911, pag. 14.
42. San Bernardino da Siena e le sue prediche secondo un suo ascoltatore pratese del 1424. Estratto dal Bullettino Senese di storia patria. Anno XX^o, fasc. III^o, 1913. Siena, Stab. Art. Graf. Lazzeri, 1913.
43. Guido da Bagnolo, Medico del re di Cipro (con nuovi documenti). Estratto dagli Atti e Memorie della R. Deputazione di Storia Patria per le provincie modenese. Serie V, Vol. XI^o, 1916. Modena, Società. Tip. Mod. 1916, pag. 50.
44. Cronachetta Pratese del 1500. Giove veduto di giorno. Un pratese hidalgo spagnuolo. In corso di pubblicazione nell' Archivio storico pratese.
45. Commemorazioni, discorsi, articoli in giornali diversi.
46. Era in corso di compilazione una grandiosa opera che doveva intitolarsi :
La schiavitù domestica nel Medio Evo o dopo. (Ricerche storiche di un antropologo.)
Né era completata omnia la raccolta delle fonti ed iniziata l'estensione del testo. La parte svolta ed i documenti, verranno pubblicati a cura della famiglia.
46. (Translation.) An important work was in course of compilation, to be entitled :—
"Domestic Slavery in the Middle Ages and after." (Historical Researches of an Anthropologist.)
The collection of material had been completed and the elaboration of the text already begun. The portion completed and the documentary materials will be published by the family.

Mexico.

Nuttall.

The Ancient Mexican Picture-Map in the British Museum.***69**

Mrs. Zelia Nuttall, whose knowledge of ancient Mexico and of the picture-writings is unique, sends the following elucidation of the picture-map on cotton cloth which was illustrated in plates B1 and B2 of MAN, 1920, 10. She says : "The map gives a census of the people inhabiting that region and the relative positions of their homes and property. It is no assembly or scene but a very practical document, showing the names, categories and number of inhabitants of certain localities and their relationship to each other at a given time, with the amount of maize provided as tribute."

"The painting represents besides the names of places, the genealogical relationships of several groups of individuals. Those united by a cord belong to one family. Husbands and wives are indicated by a dotted line from mouth to mouth. The cord (*mecatl*) which unites the group of fifteen individuals to the black-faced speaker seated in front of the temple above, reveals that they all belong to the same mecayotl or consanguinity. The footsteps descending from the other seated figure show that the other group are his descendants. If instead of footsteps, a cord had been used in his case, it would have crossed the other cord and confused the relationships."

With regard to the three rows of signs in the middle of the left side, their lower part consists of a yellow disk on which is a blue four-petaled object, "the

* Add. MSS. 30,088, A, B, Mexico.

" shape of the conventional *xochitl* or flower, with a circle in the centre of the four petals. This sign appears as a place-name combined with 7 calli, above and also below the head of an animal (the day-sign, four *tochtli*?) and is once surmounted by the *tzontli* = 400."

" The cross-barred signs above the disks resemble the sign for *gintli* or ripe maize. One occurs in combination with the large *tepetl* on the right hand of the map, in the centre of the base. The seventeen signs in which it is combined with the place-name probably refer to the production of maize in the place." Metlaltoyuca, where the map was found, was said locally to be named as " the place where maize was grown." Perhaps in the course of her researches Mrs. Nuttall may find further material to enlighten the subject of this interesting map. A. C. BRETON.

REVIEW.

Central Asia: Exploration.

Sykes.

Through Deserts and Oases of Central Asia. By Miss Ella Sykes, F.R.G.S., and Brigadier-General Sir Percy Sykes, K.C.I.E., C.B., C.M.G. London : Macmillan & Co. 1920.

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This book falls into two parts: an account of an adventurous journey from Europe to Central Asia in war time, and an ethnographical and historical description of Chinese Turkestan. The first part is the work of Miss Sykes, an experienced traveller in the East, the second by her brother, whose wide knowledge of the problems of Western Asia is shown in his valuable *History of Persia*. To Miss Sykes belongs the honour of being the first Englishwoman to cross the dangerous passes leading to and from the Pamir, and, with the exception of Mrs. Littledale, to visit Khotan. In March, 1915, the travellers left London for Kashgar, the capital of Chinese Turkestan, where Sir Percy Sykes had been appointed to succeed Sir G. Macartney as Consul-General. The record of this journey and the important tours which followed is brightly written and is full of interest. The most important parts of the adventure are the record of the journey to Khotan and of the trip to the Pamir. The book is valuable as an account from personal investigation of the strange complex of races which make up the population of Chinese Turkestan: the Sarikoli and Pakho mountaineers, who are pure Aryans; the desert group Aryans with some Uighur admixture; the Kirghiz, Dulanis, and people of Aksu; and the Chinese and Mongols, whose differentiation from the Kirghiz is noteworthy. This monograph by Sir Percy Sykes contains much fresh information and deserves the attention of ethnographers. The culture of this region bears strong marks of Chinese origin; the inhabitants were Buddhists before their conversion to the Sunui form of Islam in the tenth century, looking for guidance to the Khan of Bokhara and the Sultan of Turkey. Now Muslim saints have occupied the ancient Buddhist holy places, and ancestor worship, which also came from China, results in more frequent visits to the tombs of saints than in other parts of Central Asia. Among the more interesting points the following may be noticed: the custom of temporary marriages; the habit of placing a new-born child during the winter in a skin full of powdered cow-dung, the head only being left outside; the demons which, as in the time of Marco Polo, haunt the solitudes of the desert; the sanctity of pigeons at Kaptar Mazzar; the trade in jade; the braiding of a woman's hair after marriage, the rite not depending on the birth of a child; the eating of earth from the grave of a saint as a cure for barrenness; the throwing of mud on the wall of a shrine to cure skin disease; the use of the blood of pigeons and ducks in cases of poisoning. The book is well supplied with photographs and with a good map. It will be indispensable for the study of the region which the travellers describe.

W. CROOKE.



FIG. 1.



FIG. 2.



FIG. 3.



FIG. 4.



FIG. 5.



FIG. 6.



FIG. 7.



FIG. 8.



FIG. 9.



FIG. 10.



ORIGINAL ARTICLES.

With Plate K.

Tasmania: Anthropology.

Malcolm.

Short Notes on the Inhabitants of Cape Barren Island, Bass Strait, Tasmania. By L. W. G. Malcolm.

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In the latter part of 1912, a party, of which I was a member, visited the Furneaux Group of islands in Bass Strait, Tasmania, to study the avifauna of that locality. A number of the party stayed on the Government Reservation on Cape Barren Island, and here I was enabled to obtain a few details about the inhabitants. As two of these were half-castes descended from the long extinct Tasmanian aborigines, I obtained as much information about them and took as many photographs as possible, as well as of some of the members of their families. Practically the whole of the population claimed a very mixed ancestry. On the maternal side the descent was nearly always through Tasmanian or Australian aboriginal women. Paternally the ancestry was claimed through English, Welsh, Scotch, American and even Maori men who had settled at one time or other on the islands.

The latest reference that I can find concerning the Tasmanian half-castes is that given by Berry, who described a woman living on Kangaroo Island, South Australia, in 1904. The historians of Tasmania and the various writers on the Tasmanian aborigines all remark on the fact that there were never very many half-castes. On the whole there is very little information concerning them. Bonwick says that they "were never numerous even under the most favourable circumstances." Gliddon has pointed out that the intercourse of Europeans with Tasmanian aboriginal women failed "not merely to produce an intermediate race but to leave more than "one or two adults." By far the greatest number of half-castes were to be found on the islands in Bass Strait.

The history of the half-castes on the Furneaux Group commences in the latter part of the seventeenth century. The first settlement of the islands was largely due to the reports of Bass when he demonstrated that Furneaux Land was a group of islands, and not, as was generally supposed, to be connected with the mainland. In his Journal, under the date 2nd of January 1798, Bass wrote, "At 6 we anchored under its (Furneaux's Land) lee, but could not land. Vast numbers of petrels, gulls and other birds were roosting upon it, and on the rocks were many seals with remarkably long tapering neck and sharp-pointed head." Later on he wrote, "From the quantity I saw, I have every reason to believe that a speculation on a small scale might be carried on with advantage. There are seals more or less upon all the islands on both sides of Furneaux's Land."



FIG. 11.

As the result of the publication of this news several vessels paid a visit to the island. The net result of the first expedition was 6,000 seal skins and several tons of oil.

It is known that many of these sealers made their way to the mainland and carried off aboriginal women to the islands. In addition to these sealers there was

another white element on the islands. Convicts who had escaped from New South Wales found a safe refuge there. Bass mentions meeting with seven of these men who had escaped there in October, 1797. These men followed the sealers' example and obtained aboriginal women from the mainland. The method employed was either to take the women by force or else to purchase them in exchange for the carcasses of seals from the male members of the mainland tribes (Roth). In some cases the white men had from two to five women each. It is from such a source that the present population of Cape Barren Island is descended, and the inhabitants are very proud of their aboriginal blood.

In addition to this early population on the islands there was also the party of aborigines which had been deported from the mainland and placed under the care of a protector.

In his Reports of 1830 this officer (Mr. C. H. Robinson) stated that not less than fifty aboriginal women were kept in slavery by white men on Bass Strait Islands. He also records the fact that one union of a European with an aboriginal woman

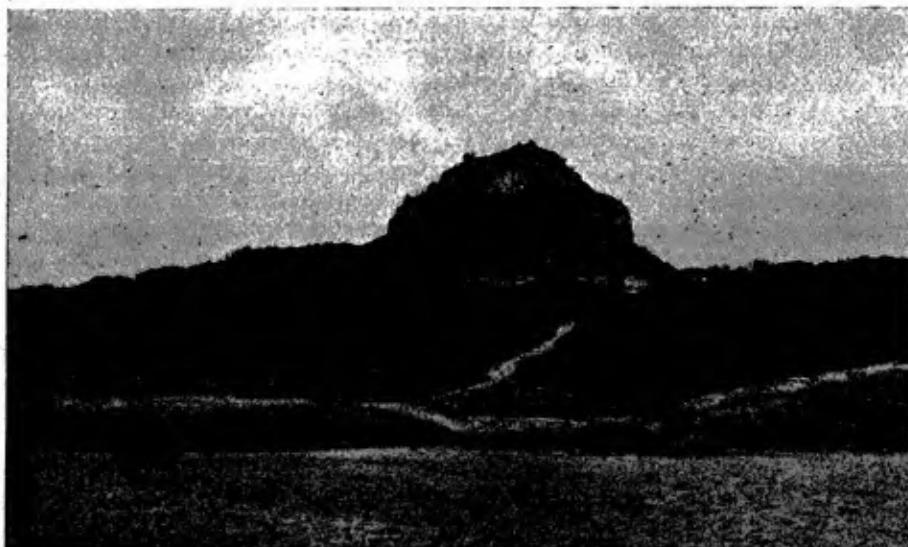


FIG. 12.—BABEL ISLAND.

(The huts used in the birding season are shown in the foreground.)

had resulted in no less than thirteen children. Kell states that these women had no desire to return to their own people but "after a time preferred stopping on the islands of the straits." An attempt was made to collect all the aborigines together, but these women ran away and hid themselves, later on returning to their white masters.

As regards the number of half-castes there seems to be a considerable divergence of opinion. Jeanneret says that in 1846 there were forty-seven full-blooded aborigines and but five half-castes living. On the other hand, Calder estimated that in 1876 there were between eighty and ninety half-castes living and that these were on the islands. Stephens, who was stationed on Cape Barren Island, stated that the half-castes then living (1898) were the descendants of the sealers and abducted women, and not from the deportees of 1835.

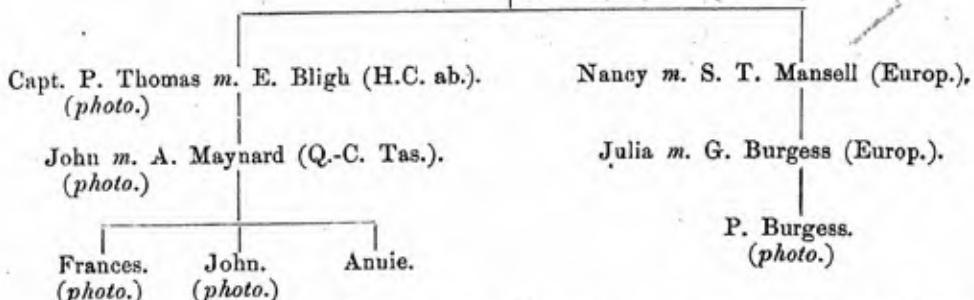
As already stated, the most interesting members of the community living on Cape Barren Island at the time of my visit were two old men who claimed descent through Tasmanian aboriginal mothers. I was able to obtain a little information from

one of them only. The other man was very old and disinclined to have anything to do with anyone, even his own people. It was possible, however, to have his photograph taken (Fig. 1). The other islander (Thomas) was not at all diffident about giving information (Fig. 2). He stated that his father was a mariner from Cardiff, Wales, and that he married Nimmeranna, a true-blooded Tasmanian aboriginal woman. The only surviving son was this man, who was known generally as Captain Thomas to all the islanders. He was very intelligent, his mental calibre being far higher than that of any of the other inhabitants. His cranial capacity, estimated by Lee's formula, was 1594·5 c.cs. The colour of his eyes, as estimated by Lovibond's Pigment Meter, was light brown; his skin colour was light brown, his hair was grey and curly. In his early days Thomas qualified for a master mariner's certificate and had charge of vessels trading on the Australian and Tasmanian coasts.

He married twice, his second wife being an Australian half-caste. By this union there were nine children, most of whom are still living. One of the sons (Fig. 11) married a quarter-caste Tasmanian and they have three children. The eldest was a girl aged ten years. Her eyes were a very light brown, and the hair was ash-blonde in colour (Fig. 9). In her general features she was quite European and she does not in the least show any aboriginal characteristics. She did not even speak like the rest of the islanders, who invariably elongate the vowel sounds. Her brother, on the other hand, displayed pronounced aboriginal features (Fig. 4). His skin tint was dark brown; his eyes were dark brown, and his hair almost black and slightly wavy.

For various reasons, mainly lack of time, the majority of the islanders were not examined in any detail, but a number of photographs were taken, which are recorded in the present paper. In some cases there were distinct evidences of absence of pigmentation on parts of the faces and bodies, especially of the younger islanders. On Burgess (Fig. 5) this feature is well shown. Another point of interest about this man's photograph is that it shows the Tasmanian aboriginal type of hair. In the following family tree his relationship to Thomas is given:—

P. Thomas married Nimmeranna (Tas. ab.).



There were only nine families on the island, comprising in all about one hundred persons. It is not surprising, therefore, that owing to the close intermarriage, some of the islanders showed signs of degeneracy, both mental and physical.

The general health was not good. Dr. G. Horne, of Melbourne, found that there were traces of phthisis in more than one islander. In the Report of the Department of Public Health, Tasmania, for 1912-3, a statement is made about a case of this disease at the birding place on Chappell Island. The huts on all the islands are generally in a badly-ventilated condition.

A very noticeable thing about these people was the pronounced odour of their bodies. It was decidedly "fishy" and may be accounted for by the great quantities

of mutton-birds that they consume. Their teeth were in very good condition. Dr. Brooke Nicholls made an examination of the teeth of all the children available, and found that at least 33 per cent. had had perfectly sound dentary arcades. The milk molars all showed signs of hard usage, and this amount of wear was in close correlation with the degree of nutrition which is found generally in the milk dentition of Australian aboriginal teeth. The children are in the habit of chewing grass-tree gum, shea-oak apples, and "jacky-vine," and this was probably the reason that the teeth were in such a good condition.

The communistic spirit was very strong. It was stated that an islander, when on a visit to Launceston, purchased a fishing net, intending to make a profit out of the other islanders by selling his hauls. The first haul was appropriated by the other islanders, and the owner of the net was informed that the fish in the sea was universal property. The net was not used again.

As far as the Government control is concerned there is nothing to which exception could be taken. A schoolmaster was in residence at the time of our visit. Medical attention is provided also. In the Report just referred to it was stated that a medical officer had been engaged to attend to an outbreak of sickness on the



FIG. 13.—FURNEAUX GROUP, LOOKING NORTH-EAST.

islands. The whole community expect the Government to give them all kinds of privileges, stating that they are entitled to them by reason of their ancestry. In this they are encouraged by the whites who have married into the island families.

The only regular work they seem to do is in connection with the mutton-bird industry. It is possible for a family to make as much as £120 during this period, so I was informed. The rest of the year is spent practically in idleness. In March of each year the whole population migrates to either Babel or Chappell Island, and by the time the season commences they have everything ready. The birding season commences on the 20th of March and lasts until the 20th of May. Bishop Montgomery has given a good description of the life on the islands during this time. Permanent camps have been erected on the site of the industry, but they were in a very ramshackle condition. During the season all supplies have to be taken to the birding-grounds, even water, which is transported in casks.

The men and boys catch the mutton-birds and the women and children prepare them for the pickling casks. The method adopted in catching the birds is very simple. A stick is poked in a burrow, and if there is a bird in it it is dragged out by the head. With a whip-cracking motion its neck is broken and it is then strung

on to a pointed stick by its under-beak. A number of birds are carried on the one stick for ease of transport (Fig. 11). The women pluck them after they have been scalded. The feet are cut off and the entrails removed, after which they are thrown on to the grass to cool. They are afterwards packed in pickling casks for export. The principal trade is done with Tasmania, from whence they are despatched to other countries. I was informed that quite a large number were formerly sent to Germany.

I am indebted to Dr. G. Horne, of Melbourne, for the photographs given in this paper.

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India.

Nicholson.

Women's Cloths in the Cuddapa District, South India. By **72**
Rev. S. Nicholson.

Everyone at all acquainted with India is aware of the differences which exist in the way women wear the cloth or Sari. It is chiefly through the women that it is possible to discover which people belong to the Right and Left hand castes.

After a little practice, too, it is comparatively easy to distinguish the Tamilian from the Telugu and the Canarese women from both, through the way in which the cloth is worn. In the same way it is easy to say whether a woman is a Braman or a Komati (merchant).

It is not, however, so far as I can learn, at all generally known that the pattern of the cloth often carries with it significant information. Apart from the fact, which is known to the most casual observer, that widows wear either white or red cloths, there seems to be quite a large amount of information to be gathered from the patterns of the cloths themselves. Accidentally I discovered that women, in the choosing of a cloth, were not in every case governed merely by fashion or caprice, and the following information is a part of what I was able to collect.

All this information is particularly local, and I find that even in the boundaries of this one district there is considerable variation of custom; but, generally, what is afterwards written applies to the greater part of the Cuddapa and Kurnool districts.

As a rule new cloths are worn for the first time, though they may have been purchased or prepared before, in the month of Kartika, the eighth month of the Telugu year and corresponding to October or November of the Christian calendar. About this time the annual festival for the worship of the dead, *Peddala Amawasyu*,

is celebrated. Before being worn the cloths are worshipped with full ceremonial of frankincense and offerings.

As a rule, although it is possible to tell at a glance the name of the particular pattern of cloth worn by a woman, it is not possible to say for what purpose it has been adopted unless the inner border is seen. The two borders at the ends of a woman's cloth are termed *hammi* and *boddhu* respectively. The *hammi* is the portion which is thrown over the shoulder after the cloth has been tied, whilst the *boddhu* is the portion of the cloth which is first tied round the waist and which is completely hidden after the cloth is tied.

It is the *boddhu* which is the most important part and which is indicative of the god in whose honour the cloth is being worn. All cloths, for instance, which are worn in honour of the snake god, Naga, have as *boddhu* a double set of four rows of blue. Cloths which are offered to Peddamma, or any of the seven sister goddesses, have two stripes of blue, four red, two blue, four red and two blue, white alternating with every colour.

The pattern of the *boddhu* does not seem to be so rigidly adhered to in the east of the district as in the west, though an east country weaver to whom I shewed my sketches was able to name all the *boddhu* correctly.

There are a few cloths which not only carry their names but their significance also plainly for all to view. These are:—

Katirevuni Koka.—A blue check cloth with white and blue border and *hammi* and *boddhu*. This cloth is worn if a woman has been subject to frequent miscarriages or if the children have died soon after birth. A vow is made to *Katirevudu*, the god of the graveyard, and the cloth is offered with the usual sacrifices in the graveyard itself.

Kanakanagalu Koka, is a red, white and blue checked cloth and is worn after being offered to the snake god.

Veyyikandla Koka (the cloth of a thousand eyes).—A blue and white check cloth worn in honour of Peddamma, the ceremony of which is hereafter described.

Yeluka Pandla Koka (rat's tooth cloth), a sketch and description of which is given later.

These cloths can be recognised at a glance, but it does not necessarily follow that because they are worn the wearer has performed the ceremony connected with the particular pattern. She may wear any cloth from choice, and, indeed, so far as I can gather, the significance of the different patterns is rapidly being forgotten.

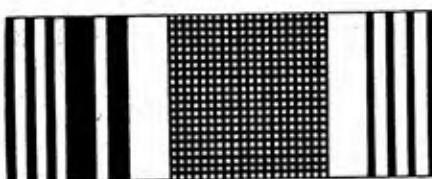
The Magala Koka (snake cloth) is worn by a woman in the first year of her marriage. At the annual snake festival the woman takes the cloth along with other offerings to the snake stones or to the anthill, and after worshipping in the orthodox manner, the new cloth is taken home and is afterwards worn. This cloth is also worn if a snake is known to be about the house, or if there is a nasty discharge from one of the children's ears! As a cure for this latter trouble sometimes a snake charmer is called in and he will clean out the ear of the child with the tail of a cobra!!!

(I have translated "Naga" as snake, but the proper translation should be cobra.)

Kunala Koka.—If children have persistent sore eyes the mother will make a vow to Kunalamma, who is supposed to be the cause of the trouble, and the cloth will afterwards be worn if the offering has proved effective. The cloth is the same pattern as *Katurevuni Koka*, but is red instead of blue and the *boddhu* is different.

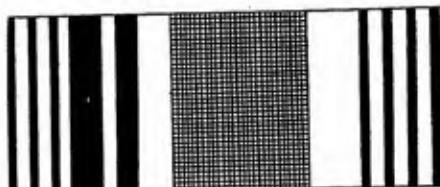
Veyyikandla Koka.—This cloth is often worn in times of cholera and of other epidemic diseases, either amongst men or cattle, and I am told that at such times it is offered to Matamma, a goddess worshipped only by the meanest caste of all the skin dressers. But if this cloth is to be worn even caste people will come to the

Madiga houses and offer the cloth with all the ceremonies. A common earthenware pot is taken and pierced with 1,000 small holes, carefully counted; round the neck



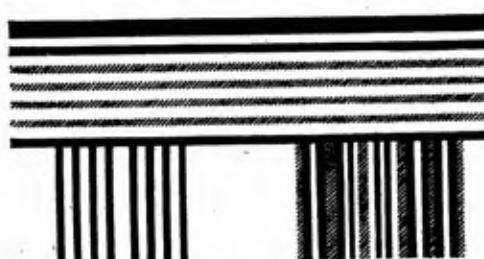
(Kammi.) (Boddhu.)

FIG. 1.—KATIREVUNI KOKA.
The lines denote blue.



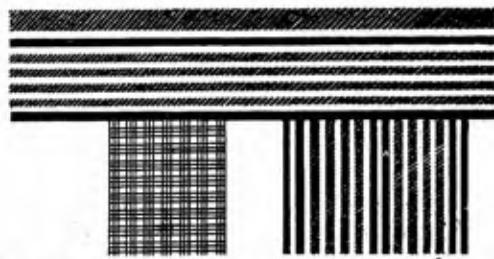
(Kammi.) (Boddhu.)

FIG. 4.—KUNĀLA KOKA.
Lines denote red.



(Boddhu.) (Kammi.)

FIG. 2.—NAGALA KOKA.
Solid lines denote blue, shaded lines red.



Whole body of cloth blue. (Boddhu.)

FIG. 5.—VEYYIKANDLA KOKA.
Shaded lines denote red, solid lines blue.
The Kammi is not inserted.

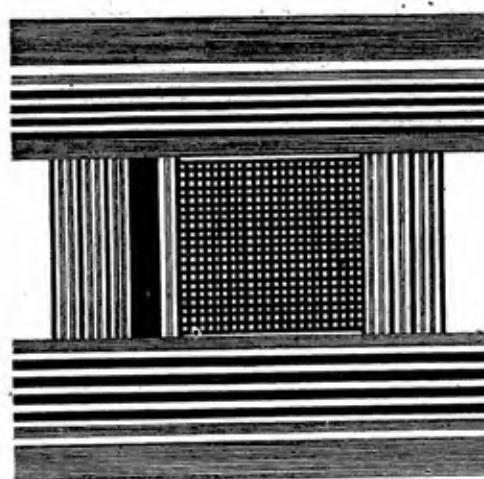
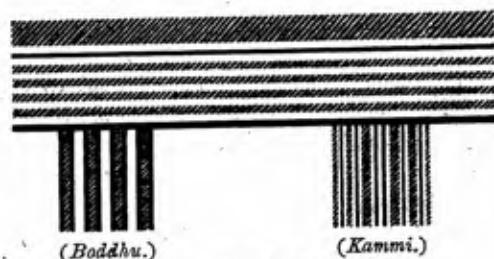


FIG. 3.—YELUKA PANDLA KOKA.

Light lines blue, solid lines red.



(Boddhu.) (Kammi.)

FIG. 6.—PERUNTALA KOKA.
Shaded lines red, solid lines blue.



(Kammi.) (Boddhu.)

FIG. 7.—A WEDDING CLOTH.
Shaded lines yellow, solid lines green.

of the pot is tied *kunkamu* or saffron string with cocoanut shell attached, a lighted lamp is placed either inside the pot or on the top, and then the pot and cloth are offered to the goddess.

Yelluka Pandla Koka (the rat's-tooth cloth).—If rats are doing damage to grain, clothes, or other things in the house, worship is made to the king of the rats and a cloth is offered. After the ceremony is finished and before putting on the cloth, a plate of rich food is left in the "god's corner" (S.E.), and all the people go outside and the door is shut for some time. The food is left for the rats, and if in the interval they come and eat it, it is a sign that the offering has been accepted.

Peruntala Koka.—This is a cloth which a man who is married a second time has prepared and worships in the name of the first wife. It is worn by the second wife. Should the husband omit to perform this ceremony it is believed that the spirit of the first wife will trouble the living wife and that she, too, will die.

In this connection it might also be mentioned that now and again jewels are prepared in the name of the dead woman and are given to the second wife. This is a great lever in her hands for making herself comfortable. She has only to say that the spirit of the first wife is taking possession of her and she can get almost anything she wants!

Vanti ancu Koka.—This cloth is given to widows (not among high castes) by their brothers during the first month of widowhood. It is a white cloth with a narrow border along its length, of either red or indigo. If ever a widow buys a cloth it will be of this kind, but often they are very poor and have to depend on charity for their clothes, in which case they will wear whatever is given.

Marriage Cloths.—These are often entirely white without either border or *kammi* or *boddhu*. If such a white cloth is worn at a wedding it must be soaked in saffron before being worn. At other times a cloth with border, *kammi* and *boddhu* of yellow either in silk or cotton will be worn, and if so there is no necessity for the steeping in saffron. On no account, however, must any indigo be introduced into a wedding garment, as indigo is a sign of death.

I also find that in the Eastern parts of the Cuddappa district no indigo is ever introduced into the *kammi*, the end of the cloth thrown over the shoulder. I have not had time to make full enquiry about this and do not know what the reason for the custom is supposed to be.

The length of a woman's cloth is just over nine yards and the breadth about yard and a quarter.

S. NICHOLSON.

West Africa.

Thomas.

The Edo Week. By N. W. Thomas.

73

In his *Book of the Black Man's Mind* (p. 214-8) Mr. R. E. Dennett gives some account of the Edo week. He states correctly that there was a four-day week : *ekē*, *aho*, *orie*, *okwog*, but prefaces the list by the statement that the following has superseded it. This is not the case; the words given for the eight days are not days of the week at all, but numerals compounded with *ele* (day) for the most part. They are as follows :—

<i>ele</i> [<i>owu</i>], <i>edenele</i>	- to-day	<i>usigle</i>	-	-	-	- in four days
<i>axive</i>	- - - to-morrow	<i>edeha</i> [<i>ele</i>]	-	-	-	- in five days
<i>ilaxwe</i>	- - day after to-morrow	<i>edehinoele</i>	-	-	-	- in six days
<i>uniele</i>	- - - in three days	<i>edeluane</i>	-	-	-	- in seven days

The bracket forms are less common, in my experience, than the short forms; I have added the form *edenele* and correct the last word of the series.

These are corresponding forms for the past :—

<i>node</i>	- - - yesterday	<i>nevgedēha</i>	-	-	-	- five days ago
<i>negedia</i>	- - day before yesterday	<i>nevgedehino</i>	-	-	-	- six days ago
<i>negedene</i>	- - three days ago	<i>nevgedenele</i>	-	-	-	{ seven days ago
<i>nevuse</i>	- - four days ago	<i>nevgedelwāne</i>	-	-	-	

It must, of course, be noted that the numeral is one in advance of our notation; *nevuse* is derived from *ene* (= *ele*) day, *v* euphonic, and *usē* (= *isē* five). *Use* is also found in such forms as *ususē* week after week; *usise*, five after five (in trading); it also means "week"; in this sense, perhaps the original one, it seems to be singular noun form from *isē*, five. According to one informant *nevedelwane* means $7\frac{1}{2}$ days ago, a very interesting parallel to the Gold Coast (Ellis, p. 215) and Yoruba (*id.*, p. 145) method. It will be remembered that these tribes synchronise week and month by modifying the last week of seven or five days; it is not clear whether *elwane* means "eight" or not; the ordinary word for a half is *uxiom*.

The most singular feature of the Edo week is that the names correspond to the Ibo week, but come in a different order; the rest day was *ekē*, in Edo proper.

In the Kukuruku country each day was a rest-day in one town or another, e.g., Ibie, *cwo*; Afuge, *ekiru*; Soso, *evia* (also market); Wari, *elomi*; the combination of rest and market day is not uncommon in the Sobo area also; as each Edo day had a market assigned to it, two in Edo, two outside, the rest-day was necessarily also a market day.

The number of day names in use is considerable. I am preparing a list for publication; here I can only show the irregularities in the four-day week:—

IGARA.	IBO.	OKPOTO.	KUKURUKU, Semolika.	ASIGA.	EDO.
<i>ekē</i>	<i>ekē</i>	<i>eke</i>	<i>ekwi</i>	<i>ekē</i>	<i>ekē</i>
<i>ede</i>	<i>oyi</i>	<i>ori</i>	<i>iviena</i>	<i>aboko</i>	<i>ahō</i>
<i>afō</i>	<i>afō</i>	<i>okwo</i>	<i>anumo</i>	<i>nkwō</i>	<i>orie</i>
<i>ukwō</i>	<i>ukwō</i>	<i>avō</i>	<i>avo</i>	<i>ile</i>	<i>okwo</i>

Thus, we find the order of the days changes as denoted by the figures in the above lists.

Afō [2, 3, 4], *oyi* (= *ile*?) [2, 3, 4] and *nkwō* [3, 4]; I am not sure of the equivalent of *iviena*, which is the same as Soso *evia*, but it appears to be *orie*.

On the Cross River the Ezzi, Agala, and Nbo have a five-day week with a single name corresponding to the set shown above. Arun, Wakande, and Ogoni belong to this calendar group, as do some of the Yoruba.

N. W. THOMAS.

Obituary.

Robert Munro, M.A., M.D., LL.D. Born July 21st, 1835; died July 18, 1920. By E. N. Fallaize. 74

We regret to record the death at the advanced age of 85 of Dr. Robert Munro, the veteran Scottish archaeologist, which took place at his residence at Largs, Scotland, on July 18th. For many years Dr. Munro was one of the best known exponents of prehistoric archaeology in this country. He received his education at Tain Royal Academy and Edinburgh University, and, after qualifying as a doctor of medicine, practised for some years at Kilmarnock. In 1886 he retired in order to devote himself to archaeology, specialising in the study of prehistoric lake and pile-dwellings. His first investigation of importance was made in 1878-9 on a site at Locklee, Tarbolton. This was followed by the exploration of sites at Friar's Carse, Lochspouts, and Buston, in the south-west of Scotland. Accounts of these investigations appeared in the Collections of the Ayrshire and Wigtonshire Archaeological Association, and were afterwards embodied in *Ancient Scottish Lake Dwellings*, published in 1882.

In 1890 Munro published his most important work, *The Lake Dwellings of Europe*, embodying his Rhind Lectures of 1888, and containing a complete survey

of the evidence which at that date had been obtained, in particular, from the Swiss Lake Dwellings and the Terramare Settlements of Italy. In addition to summarising the work of others, it contained the results of his own observations, most of the sites having been visited by him personally. A French edition appeared in 1908.

The results of subsequent investigations in this field were given in Munro's Dalrymple Lectures in Archaeology in the University of Glasgow, delivered in 1910-11. These lectures, with the substance of his Munro Lectures in Anthropology in the University of Edinburgh—the first course of lectures to be delivered on this foundation—were published in book form in 1912 under the title *Palæolithic Man and Terramare Sites of Europe*. In addition to the works already mentioned, Munro was the author of several books, including *Prehistoric Problems* (1897), *Prehistoric Scotland and its place in European Civilization* (1899), *Man as Artist and Sportsman in the Palæolithic Period* (1904), *Archæology and False Antiquities* (1905), and *Prehistoric Britain* (1914), a popular summary. He also contributed a large number of papers to the Proceedings of various learned Societies.

Munro was elected a Fellow of the Society of Antiquaries of Scotland in 1879, and held the office of Secretary of that body from 1888 to 1899. In 1885 he became a Fellow of the Anthropological Institute. He was also a Fellow of the Royal Society of Edinburgh and an Honorary or Corresponding Fellow of several of the principal Archaeological and Anthropological Societies of the Continent. In 1893 he was President of the Anthropological Section of the British Association for the Advancement of Science, and from 1894 to 1913 acted as Chairman of the Research Committee of the Association which conducted excavations on the site of the Lake Villages at Glastonbury and Meare.

E. N. FALLAIZE.

REVIEWS.

Anthropology.

Leon.

American Journal of Physical Anthropology, July-September, 1919.

75

The eminent Mexican writer and investigator, Dr. Nicolas León, here gives (in Spanish) some account of the various efforts made in Mexico towards the study of Physical Anthropology. As long ago as 1864, during the French occupation, a scientific commission was organised by order of Marshal Bazaine, amongst its ten sections being that of Medicine, which included Anthropology. Dr. Jourdanet was on this commission and made valuable observations on the effect of the altitude on natives and residents, the *anémie des altitudes*, as he called it. Those who have accused Mexican Governments of all sorts of incompetence should learn that life at 7,000 or 8,000 feet does affect the human system, not altogether favourably.

Quatrefages prepared the Instructions relating to Anthropology for the Commission Scientifique du Mexique, which was created by decree of Napoleon III. in February, 1864. Measurements of the natives were taken, and skeletons collected and sent to Paris. The results were partly published in Dr. E. T. Hamy's *L'Anthropologie du Mexique*.

In 1887 a Section of Physical Anthropology was formed in the National Museum, with Dr. F. Martínez Calleja as the first official professor, but was not long maintained. For the Columbian Exhibition at Madrid in 1892 explorations and excavations were made in many parts of Mexico, and great collections, including skulls and other human remains, were sent over, most of which failed to return. The same thing happened for the Chicago World's Fair of 1893. Further collections were made for the Americanist Congress held in Mexico City in 1895, including the

results of the excavation by a hundred workmen of part of the great square of Tlaltelolco.

Amongst Dr. León's own activities, he was Director of the Museum at Morelia (capital of the State of Michoacán) from 1886 to 1892, when he collected a number of skulls from ancient burials. As medical officer to the Civil Hospital he was able to procure human brains for study. In 1900 he was appointed to the National Museum and in 1903 to the chair of anthropology and ethnology there. During more than three years he made expeditions with his students to the various Indian tribes, taking measurements, making casts of heads from life and doing other valuable work. Some of his students showed great promise, especially two ladies. Dr. León ceased to be on the Museum staff from 1907 to 1911, when he returned as Director of Physical Anthropology and Anthropometry. Several months were required for the re-arrangement of the specimens, which had suffered considerably. The troubles of recent years and want of funds have hindered the development of this branch of science.

An ambitious programme was sent out in 1918 from the Ministry called Fomento, whose function is to assist any useful project. A Dirección de Antropología has been created, with Señor M. Gamio as head, for study of the Indians from every point of view, in order to improve their condition. But this will not be effected by radical changes. In Mexico, as in India, the problem is how to adapt communities which have maintained themselves and their own local government during many centuries, so that they may take part in the rush of modern civilization, and acquire expensive tastes or what is called a higher standard of living. The well-to-do garden-towns, almost entirely self-supporting, are shining examples to those of other countries where greed and hatred have been sown. It is the mongrel population that needs to be improved, the canaille of the cities along the path of the Spanish adventurers, who are so different to the original inhabitants, and who, unfortunately, are first met by tourists and supposed to be typical Mexicans.

In Criminal Anthropometry Mexico has a good record. From 1891 onwards the Penitentiary at Puebla maintained a cabinet where the skulls of the convicts who died were studied, and classified according to the crimes committed by their owners. On entering the prison the convicts were closely examined and statistics prepared, giving full information about them.* The study of school children was also begun, and in 1912 Dr. León became head of the service of School Hygiene. Heights and weights of over 59,000 children were taken between 1910 and 1912. He studied methods of measurement with Dr. A. Hrdlicka and profited by his extensive practical experience. The chief obstacles to real progress in anthropology in Mexico appear to be: (1) the distance from good collections and experts who could be consulted; (2) the want of books, manuals and scientific periodicals from which to gain correct information. The present Government would be grateful for co-operation by members of learned societies. Dr. León adds a useful bibliography of 300 entries.

Very little real anthropological work has been done by foreigners in Mexico. Dr. A. Hrdlicka made four expeditions, chiefly in the northern states, measuring and making casts. Dr. C. Lumholtz studied the Huicholes and Prof. F. Starr, in five trips between 1897 and 1901, gathered many photographs and took casts of twenty-three groups of Indians, though not all are truly characteristic. The people most worth studying live in remote spots and are seldom met except at festivals of popular saints, when thousands assemble. Real Indian women could only be approached by a woman, as they are excessively shy.

* Martínez Baca and M. Vergara, *Estudios de Antropología criminal*. Puebla, 1892. Translated into Italian and published at Turin, 1894, in *Bibl. Antrop. Ciurid.*, ser. 3, v.

The other principal article in this number of the journal is a complete exposition by Dr. A. Hrdlicka of the principles and methods of anthropometry, well illustrated with photographs and diagrams.

A. C. BRETON.

Religion.

Schleiter.

Religion and Culture: A Critical Survey of Methods of Approach to Religious Phenomena. By F. Schleiter, Ph.D. Pp. x + 206. New York: Columbia Univ. Press; London: Oxford Univ. Press, 1919. Price 8s. 6d. net.

76

To anyone intending to write on fundamental problems of mental culture, such as the relation of magic and religion, this will be an invaluable work. The author discusses the fashionable jumble-bag method of selecting data in support of a theory, and points out the assumptions that underlie such a procedure; in the course of his argument he appeals to writers unknown to the anthropologist, such as Tanzi, an Italian alienist, and to other psychologists, like Freud, with whom we are more familiar. He discusses the importation of biological concepts, such as homology, as to the utility of which even biologists are not perhaps quite in agreement amongst themselves, and points out the weaknesses of this comparative method. The theory of convergence has attractions for him, but he condemns its application to the explanation of cultural complexes in general (*überhaupt*, as he oddly puts it), as distinguished from individual cases of similarities.

As regards magic, he points out that magic cannot be similarly identified with evil practices, but it is not quite clear from his argument how he himself distinguishes magic from religion; when he cites *intichiuma* ceremonies as magical, he is not propounding a criticism that the late M. Durkheim would need to consider, for the simple reason that such ceremonies are in his view religious. I cannot help thinking that the author is himself not quite clear as to how he distinguishes the terms in question; his review of animism and the *mana*-doctrine is largely non-committal.

Dr. Schleiter is aware that Codrington's account of animism is ambiguous; but he has not come across Hocart's criticism of non-animistic force; he is, apparently, as much interested in metaphysics as in the phenomena of religion, witness his discussion of Bertrand Russell's views, and one cannot blame an author for not finding all the items bearing on the subject in these days of books without adequate bibliographical works of reference. But his work would have been still more informing if he had followed up the *mana*-discussion and the evidence, recently produced, that totemism, as commonly understood, is a unifying principle only because the observer has failed to understand his data and has confused totally different phenomena. I may add that his book would have also been more useful if he, or his publishers, had insisted on an index and an adequate table of contents in the place of brief one or two-line headings of chapters.

The author would gain immensely, so would his readers, if he could make himself personally familiar with the phenomena of mental life among the lower peoples. It is really criminal in these days for a man, however well read, to deal with matters on which he has not a view derived from personal observations. A surgeon who has not dissected a corpse nor cut up a living body but has simply read what other people have written on the subject would not be well placed for making discoveries, though he might be able to point out errors in theoretical treatment of data and perform other useful functions. If Dr. Schleiter intends to follow up this study his first care should be to spend a year or two in collecting data by means of the native language, the second to provide himself with as exhaustive a guide to contemporary literature as circumstances permit. Then he can give us a survey of the field which will not be merely negative.

N. W. T.

India: Astronomy.

A Guide to the Observatories at Delhi; Jaipur; Ujjain; Benares. By G. R. Kaye. 22 x 15 mm., pp. 108, Plates I-XV. Calcutta : Superintendent Government Printing, India, 1920. Price 3s. 6d.

Kaye.

77

This handy little volume is a condensation of the same author's large work, *The Astronomical Observatories of Jai Singh* (MAN, 1919, 77). Issued in easily portable form, it contains just the information required by an intelligent traveller visiting the observatories described, whom it refers to the original study for fuller details than come within its scope. A selection from the "Bibliography" of the larger book is given ; and a useful little "Glossary" of important astronomical terms, Indian or European, has been added.

W. L. H.

PROCEEDINGS OF SOCIETIES.**Anthropology.**

British Association.

78

Eighty-eighth Annual Meeting of the British Association for the Advancement of Science, held at Cardiff, August 24th-28th, 1920. Proceedings of Section H.

Section H. (Anthropology) met at University College, Cardiff, under the presidency of Prof. Karl Pearson, F.R.S.

In his presidential address, Prof. Pearson maintained that Anthropology should hold the position of "Queen of Science." Anthropology, however, and in particular anthropometry, must show that it was utile. The greater part of the multitudinous observations of anthropometry were dead almost from the day of their record because the progress of mankind in its present stage depended upon characters wholly different from those which had occupied the attention of the anthropologist. The psycho-physical and psycho-physiological characters carried far greater weight in the struggle of nations than the superficial measurements of the body.

Anthropometry must turn to appreciations of bodily health and mental aptitude—vigirometry and psychometry. To place anthropology in its true position, anthropologists must insist (i) that recorded material is such as is likely to be useful to the State ; (ii) that there should be institutes of anthropology for teaching and research ; (iii) that our technique should not consist in mere statements of opinion on the facts of observation, but should follow the methods coming into use in epidemiology and psychology.

PHYSICAL ANTHROPOLOGY.

Prof. F. G. PARSONS, in a paper entitled "The Modern Londoner and the Long Barrow Man," criticised the conclusion of the late Dr. Macdonell and Prof. Pearson that the Londoner approximated to the type of Long Barrow man, and maintained that when the modern Londoner departs from the Anglo-Saxon type it is in the direction of the Alpine rather than the Long Barrow folk. Prof. H. J. FLEURE summarised the results of his investigation of the Welsh physical type. He found that there are nine distinct physical types in Wales, and that, generally speaking, the Welsh people show more long-headedness, more dark pigment, and are of shorter stature than the English, but that both are a complex mingling of different breeds.

Mr. L. H. DUDLEY BUXTON, in a communication on "The Physical Anthropology of Ancient Greece and Greek lands" based upon a study of the cephalic index, stature, upper facial index, and pigmentation of the modern population and a comparison with the scanty early material available, concluded that (1) the cranial index shows sufficient variety to suggest ethnic admixture ; (2) this admixture has not been evenly distributed, and local and distinct sub-races have been formed, and that (3) the

admixture is early, possibly neolithic, in Leukas, and Bronze age (or earlier) in Cyprus or Crete. At both boundaries in the Greek world there are two racial types of comparative homogeneity; the intermediate people who present local divergencies are very variable. The Greeks are a combination, probably early, of Alpine and Mediterranean stocks.

Miss TILDESLEY in "Preliminary Notes on the Burmese Skull" suggested a close affinity between the Burmese crania and Malayan skulls.

ETHNOGRAPHY.

Dr. W. H. R. RIVERS, in a communication on the statues of Easter Island, suggested that these may represent the hypertrophy of one element in an association similar to that found in San Christoval, where stone images represent the dead chief buried in the pyramidal structure with which the images are associated. The crowns of red vesicular tufa represent hats rather than hair, either natural or in the form of wigs, as has been suggested, and may be compared with the hats which are prominent symbols of the dead in Melanesian societies which practise the ghost cult.

Capt. L. W. G. MALCOLM dealt with the Anthropogeography of the Cameroons, and in particular of the area in which Bantu-speaking peoples came into contact with the Sudanese; and Prof. E. H. L. SCHWARZ described certain elements in the culture of the Ovambos for which he endeavoured to find analogues in the customs of early historical races who were in contact with Africa.

Dr. H. WALFORD DAVIES, in a paper on Euphony and Folk Music, dealt with the pentatonic scale and the origin of the Dorian Mode, while Dr. J. LLOYD WILLIAMS, in describing Welsh National Music, pointed out that while its character depended in a large degree upon the harp, in vocal music, of which an unexpected wealth had recently been discovered, a considerable proportion was in the Dorian Mode. A unique feature in Welsh songs was the singing of penillion.

ARCHÆOLOGY.

Professor W. M. FLINDERS PETRIE described his recent work in Egypt, the discoveries including tombs of I-III dynasties, and an inscription of the XII dynasty in alphabetic signs. Mr. P. E. NEWBERRY, in his communication "Early Egypt and Syria," showed that there was in Syria a parent culture from which the early civilization of the Nile and the Euphrates sprang. The ox, the sheep, and the goat were introduced into Egypt from Western Asia, and the crook and the flail, the royal insignia of Dynastic Egypt, were both of Asiatic origin, the former being the crook of the goatherd, the latter, it was suggested, being an instrument used by goatherds for gathering ladanum from the cistus bush, which was not found in Egypt. The *neter-pole* and the *ded-column* must be of Syrian origin as both were of coniferous wood. The traditional home of Isis and Osiris was between Byblus and Damascus; there the vine and wheat and barley grew wild. The Egyptian house was obviously derived from a wood-built dwelling, and both Egypt and Babylon are known to have drawn their timber from the Lebanon area.

Mr. R. CAMPBELL THOMPSON, in a paper on prehistoric dwellers in Mesopotamia, maintained that a proto-Hamitic section of the Mediterranean race, which migrated at an early date into Arabia, was the forerunner of the Semitic peoples.

Mr. S. CASSON described the recent excavations at Mycenæ of the British School of Archaeology at Athens, which had been carried out in the light of a reconsideration of Schliemann's discoveries. The Grave Circle showed traces of a Bronze Age civilization, and even of Neolithic remains, and it seems certain that there was a continuous mainland civilization ranging back to the beginning of the second millennium B.C. It would appear that when Mycenæ was replanned by the later kings, such as

Atreus, by whom the Lion Gate and the Acropolis wall were built, the burial ground of their forerunners was enclosed by the Grave Circle, which was used as an ossuary, out-lying graves being cleared, and their contents placed within the circle. Mr. Joseph S. S. WHITAKER's paper on "Recent Anthropological Research at Motya," described the remains brought to light on the Island of Sau Pantaleo on the N.W. coast of Sicily, which is undoubtedly the site of the ancient Phoenician colony of Motya. The island was originally fortified by a wall all round, and the north and south gateways have been discovered. The former consists of an outer gateway formed of two apertures, recalling the Athenian Dipylon gate, and a second, twenty-two metres behind it, of six apertures in pairs. In a cemetery—the first to be discovered—the prevailing method of disposal of the dead was incineration, although in the later cemetery on the adjacent mainland inhumation was chiefly practised. One burial place contained only the remains of animals, mostly ruminants, in single urns.

Signor G. BAGNANI dealt with the results, some not hitherto described, of recent archaeological investigations on sites in Rome, including the Roman Basilica at Porta Maggiore, the tomb on the Via Ostiense, and the tombs found under the Church of San Sebastiano.

Dr. T. ASHBY, in a joint communication by himself and Mr. ROBERT GARDNER, described further observations of the Roman roads of Central and Southern Italy, in particular the Via Valeria, through the Abruzzi, the Via Latina, and the Via Cassia through Etruria.

Mr. G. H. GARFITT'S paper on a recent discovery of rock sculptures near a stone circle in Derbyshire, described cup and ring markings, and two sculptured stones found near the circle on Eyam Moor (see MAN, 1920, 19). On the latter was represented a deer-horn pick and a plough. A comparison with dolmenic sculptures in Brittany suggests an association with the Ægean Goddess of fertility, whose cult may thus have extended to Derbyshire. Mr. MACRITCHIE brought forward evidence to show that early references to Greenland must be taken to denote some European country, probably the area between W. Sweden and the Ourals, and indicated the bearing of this conclusion on European ethnology, and Mr. KIDNER described certain round barrows in the New Forest which do not conform to the three standard types. Mr. WILLOUGHBY GARDNER gave an account of further excavations on the hill-fort site of Dinorben in North Wales.

An afternoon session was devoted to an expedition to the site of the Roman city of Venta Silurum at Caerwent under the guidance of Dr. Ashby, who was in charge of the excavations carried out on that site some years ago. As a preliminary to the excursion Dr. Ashby also gave the Section an account of the chief results of these excavations.

E. N. F.

ANTHROPOLOGICAL NOTES.

On Tuesday, June 1, 1920, the Degree of Doctor of Letters (*honoris causa*) was conferred by the Vice-Chancellor of the University of Oxford on Them. Zammit, M.D., C.M.G., Professor of Chemistry of the University of Malta. Dr. Zammit was presented by the Public Orator, Dr. Godley, who made the following oration:—

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"Duo ad vos hominem in eo scientiae genere versatum quod omnes universitates præcipuo studio fovere debent. Nam cum in Insula Melita non solum antiquissime gentes, sed et multæ quarum annales sunt in manibus, vestigia sui reliquerint; primus hic antiquitatis. præsertim vero templorum Tarsinensium et Hypogei, quod vocatur, reliquias tum diligentissime investigavit, tum in Vallettano illo museo quod ab ipso fundatum est, ita monumenta prioris ævi dispositus atque ordinavit ut priscae gentis,

mortalium vitae maximum lumen effunderet. Atque has curas et haec studia historiæ et archæologorum animos præcipue tangentia ita secutus est homo versatilis ut non nisi à παρέργῳ et quoties a medicina sua vacaret, laudem inter eruditos quæreret cuius enim est in maiora industriae et ingeni acuminis, idem febri causa exquirendo et inventas tollendo Melitensibus suis vita condicionem multo tolerabiliorem fecit.

"Habetis virum omnium numerorum, et qui res præteritas idem scrutandi et præsentes meliores reddendi sit peritus. Nunc igitur cum in Britannum venerit ut repertorum suorum descriptione aures atque animos audientium oblectet, datur nobis occasio Asclepii eundem et Musarum discipulum ordinibus nostris ascribendi.

"Itaque presento vobis virum eruditum Themistoclem Zammit, illustrissimi Ordinis Sanctorum Michaelis et Georgii comitem, Medicinæ Doctorem, Chemiæ Professorem in Universitate Melitensi, Musæi quod est in urbe Valletta curatorem, ut admittatur ad gradum Doctoris in Litteris honoris causa."

Professor A. A. Inostranoff, whose death has been recently announced, was professor of geology in the University of Petrograd for many years. Though his chief works were on petrology, he took considerable interest in prehistoric archaeology, and in 1882 published an important work on certain remains of the Stone Age found on the southern shore of Lake Ladoga. Unfortunately, this work, being in Russian, is inaccessible to most English anthropologists, but a very full summary of it appeared in *L'Anthropologie*, while many of the details have been quoted by Lord Abercromby in his *Pre- and Proto-Finns*.

ACCESSIONS TO THE LIBRARY OF THE ROYAL ANTHROPOLOGICAL INSTITUTE.

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(Donor indicated in parentheses.)

Travels in South Africa. By the Rev. John Campbell. Vol. I. $8\frac{3}{4} \times 5\frac{1}{2}$. 384 pp. A map and coloured prints. London Missionary Society, 1822. (Miss Durham.)

Dictionary of Yoruba Language, English-Yoruba; Yoruba-English. $7\frac{1}{2} \times 5$. 259 pp. Church Missionary Society. Lagos, 1913. (Dr. J. Brownlee.)

Yoruba Grammar and Composition. By W. S. Beecroft. $7\frac{1}{2} \times 5$. 95 pp. Lagos, 1914. (Dr. J. Brownlee.)

English Principia or Grammar Gēsī. By J. G. Kuyé. Third Edition. $7\frac{1}{2} \times 5$. 149 pp. 1913. (Dr. J. Brownlee.)

A kwukwo-Ogugu, Ibo. 64 pp. (Dr. J. Brownlee.)

The Hittites. By A. E. Cowley, M.A., D.Litt. The Schweich Lectures for 1918. $9\frac{3}{4} \times 6\frac{1}{4}$. 90 pp. Map and illustrations. H. Milford, Oxford University Press. 6s. net. (The Publishers.)

Annals and Antiquities of Rajasthan or the Central and Western Rajput States of India. By Lt.-Colonel James Tod. Edited, with an introduction and notes, by W. Crooke, C.I.E. 3 Vols. $7\frac{1}{2} \times 5$: liii + 587; xxvii + 669; xix + 579. Map and frontispiece to each volume. H. Milford, Oxford University Press. (The Editor.)

The Inscriptions of Sinai. By Alan H. Gardiner, D.Litt. and T. Eric Peet, B.A. Part I. Introduction and plates, 18×14 . Egypt Exploration Fund. (Sir Everard im Thurn.)

Hindu Holidays and Ceremonials. By B. A. Gupte. $8\frac{3}{4} \times 5\frac{1}{4}$. 256 pp. 18 illustrations, 6 in colour. Second edition, revised. Thacker, Spink & Co., Calcutta. (The Author.)



FIG. 1.

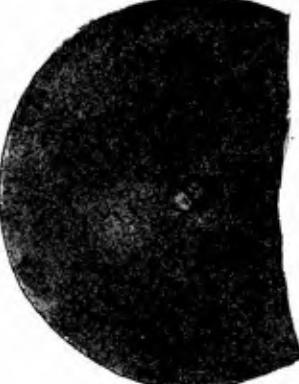


FIG. 2.



FIG. 3.



FIG. 4.



FIG. 5.

BRONZE MIRRORS.

1, Korean; 2, 4, 5, 6, Chinese; 3, Japanese.

FIG. 6.

ORIGINAL ARTICLES.

Japan.

With Plate L.

Chikashige.

Ancient Oriental Chemistry and its Allied Arts. By *Masumi Chikashige.*

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HISTORICAL SECTION.

As it is probable that it would be better to give a short historical sketch of the development of Chemistry and Arts in the East before entering immediately on the criticism of their intrinsic worth, I write this historical introduction to my paper.

1. JAPAN.

The history of Chemistry, except its application in arts, is quite new in Japan. Modern chemistry was first introduced from Europe after the middle period of the

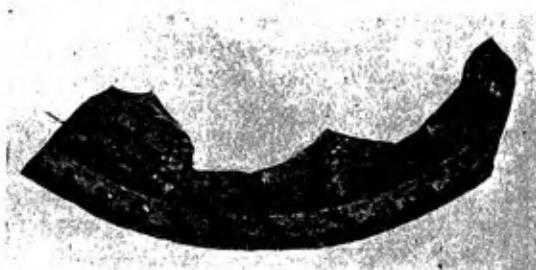


FIG. 7.

Tokugawa Government. A book on Chemistry, entitled *Chymie Kaisō* (*Kaisō* meaning standard work), was translated in 1829 by a physician named Yōan Udagawa from a Dutch work, which was, in its turn, a translation of a German book written on the basis of Henry's original. Earlier than this, in 1802, another physician named Ranzan Ono wrote a commentary to *Pen T'Sao*, a famous Chinese book on

natural history, in which he introduced many new ideas originating in Europe. As the only books which he could get imported from Holland before 1802 must have been largely alchemical, alchemy may be thought to have had some influence in Japan about that period.

Having nothing more remarkable to chronicle till far back in the tenth century, we meet there with two books, *Yengishiki* and *Wamyōshō*, of interest. Both are a kind of dictionary of things, ceremonies, &c., imported or home made, but all in Japanese names. We must therefore believe that the Japanese were already in that period more or less in a position to carry out works for which chemical knowledge was necessary. In the eighth century the Japanese had their gold and copper mines, and could also make calomel from mercury. In the sixth century the way of making iron swords, then prevailing, is said to have been improved by some of the naturalised Chinese. Earlier than this period, we may find many other objects of art, some of which are described in the general section.

2. CHINA.

When modern chemistry was introduced into China is not certain. Quite apart from this problem the Chinese had their own chemistry even from a remote period. It was being studied by the people belonging to a religious sect called Tao Chiao. Among many books on this sect, we have *Go Hung's Pao Po Tsu*, edited in the second century, the first part of which relates to Chinese chemistry. As will be stated more fully, it had two objects, one being to make gold, and the other to find the elixir of life. Hence, it is a study with both alchemy and iatrochemistry combined. Previous



FIG. 8.

to *Pao Po Tsu*, there is another book named *Chou Yi T'San Tsung Kei*, appearing in the first century, which also relates to chemistry though not so complete as the former. The Chinese believe the originator of the Tao Chiao to be the sage Lao Tzu, who was born in the sixth century B.C., and was said in legend to have lived 800 years. These periods correspond with those of the Greeks and Romans, who also possessed alchemical knowledge. The method of getting gold was an amalgamation process in both parts of the world. It is not, however, easy to say whether any communication existed between China and Greece or Rome by which knowledge could mutually be exchanged.



FIG. 9.

As to the arts, the Chinese showed their excellent abilities in still earlier times. So early as in the Chou Dynasty, some 1,000 years B.C., a book entitled *Chou Li* appeared, in a part of which, named *K Aokung-ki*, so called six receipts of copper-tin alloys are given, differing according to the sort of article to be made. They are: (1) 17 per cent. tin for bells, kettles, &c.; (2) 20 per cent. tin for axes, &c.; (3) 25 per cent. tin for halberds; (4) 33 per cent. tin for larger weapons; (5) 40 per cent. tin for adzes, &c., and (6) 50 per cent. tin for mirrors, files, &c. The first three receipts are nearly right, when regarded from a modern standpoint, while in the latter three there is too great a proportion of tin. These numbers might, however, be taken simply as showing that much bigger quantities of tin are necessary to make such articles as large weapons, adzes, &c., than to make the others, as the Chinese are sometimes very rough in making a statement about numbers. Moreover, analysis has shown, as we shall see later, that antique bronze articles are of a very reasonable composition, the tin contents usually falling within a limit of 30 per cent., or thereabout. The artists, therefore, must have had the guidance of regulated knowledge and never worked at random.

Earlier than the Chou, we have the Shang Dynasty, where we find, too, bronze articles, some of which are still well preserved. The date goes back as far, perhaps, as 1,000 years B.C.

GENERAL SECTION.

So much for the historical, that is to say, the exterior, point of view. We must examine Oriental Chemistry now from the interior, and test the real values of the civilisation which the ancient Orientals enjoyed:

I. ANCIENT CHINESE CHEMISTRY.

Ancient Chinese Chemistry consists of two parts:—(1) Theories, and (2) Gold Making, the latter having in its turn two aims, wealth and eternal life.

The theories concern nothing but disputation for possibilities of an eternal life. As there has been no case of the eternal life, the chemists had to hoodwink themselves by citing matters only in analogy. A few quotations will be made from some of the chapters in *Pao Po Tsu*, as in the following:—

"A smith, however skilled he may be," says an opponent, "cannot make the best kind

"of sword with lead as its material. How can you obtain an eternal life in mankind as mortal as it is?" "A deaf man," answers Go Hung, "cannot



FIG. 10.

" hear the roaring of thunder, but it is not right to say the roaring is low. " We are used to talking about vegetables growing in the summer, but cannot " neglect the fact that wheat will fade promptly. Nature is varied. One might " die, the others might live. Don't forget, moreover, that I have a most efficacious " medicine for health."

" Your medicine," says the opponent, " is not of the same nature as ours : it may be of no use." Go Hung's answer to this is : " Should you prepare a very " good extract from human hairs, it is surely hopeless for your bald head. On the " contrary, wheat and other grains, though they do not spring from our bodies, are " one of the necessities of our lives."

The second part of the chemistry, i.e., Gold Making, is more practical. Go Hung enumerates the follow substances as medicines for an eternal life, their efficacy being in the following order :—Cinnabar, gold, silver, some mushrooms, some gem stones, mica, pearl, auripigment, some iron ores, quartz, asbestos, sulphur, azurite, some resins, &c. The reason why cinnabar and gold are taken first is this :—

When cinnabar, a red substance, is burnt, it turns white, but, on being heated further, it will turn red again. Gold also suffers no change either when melted or left buried. There are no other substances which can modify them in this respect. So he came to the belief that when taken internally, they might be the most efficacious in helping our eternal life.

The form in which Go Hung made cinnabar and gold suitable for internal administration must be described. First of all, wealth being one of the chemist's aims, he will not waste any gold ready made. He wanted to get it from the ores.

For this purpose he makes at first the so-called " Black Yellow " (which is said by the Chinese to be the colour of the Cosmos) substance in a paste, consisting of auripigment solution, copper sulphate and its solution, rock salt, salammoniac, oyster shells, " red stone fat," talc and white lead. The auripigment solution is so prepared that one puts the mineral in a new cut bamboo stem together with nitre, and on sealing it on both sides keeps it immersed in strong vinegar for twenty days. Of " red stone fat," a description given in *Pen T'Sao* is not clear. A sample belonging to the Japanese Imperial Household, imported from China some 1,200 years ago, is a smooth, earthy mass of a pale peach red colour. We cannot, however, obtain any access to it in order to analyse it. The samples in commerce which are sometimes used by physicians of the Chinese School as a stomach cure do not differ from the above-mentioned in their appearance and were found on analysis to be composed of ferric oxide mixed with fine clay. What the ancient chemist wanted to use might probably be an outcrop of the ferruginous gold ores.

He then seals the " Black Yellow " with mud and places the mass into the fire for thirty-six days. Gold should be produced in this way. To test it he had to mix the ignited mass with a large quantity of cinnabar or mercury and heat it. Gold will be got amalgamated and left behind when the mercury is distilled off. The ignited stuff as well as the gold may then be administered internally with efficacy.

If the " red stone fat " be, as I suppose, a gold ore, such substance as rock salt, salammoniac, oyster shells and talc, alkaline or acid in their nature, may act as a flux on the gangues and separate gold, which will partly form alloys with lead reduced from the white lead and partly remain in its free state. Amalgamation and cupellation are then necessary to get gold extracted. The use of copper sulphate comes probably from an erroneous idea, that its wonderful property of changing iron to copper might also act in the direction of producing gold.

Auripigment solution could not have any action in making gold ; it must leave, however, after ignition more or less arsenious acid, which was really the most efficacious ingredient, killing, it is said, many of the people who drank the elixir !

2. BRONZE ARTICLES.

Among the various productions of ancient Japanese and Chinese art, the bronze articles are one of the most suitable for our purpose, which is, to examine the real nature of the ancient civilization, in the matter of metallurgy. They resist the corrosive action of time much better than other things, and are able to preserve the features of ancient art correctly for us. Brass articles are not so antique as bronze. They hardly have their beginning earlier than the tenth century, i.e., the beginning of the Sung Dynasty.

As excavated objects are inevitably found to be covered with rust, it has been a custom for analysts to get this off before they go to the test. But since the constituents of an alloy, which is simply a mixture not chemically combined, would keep their own proper affinities, the rate of rusting must differ in the case of each metal. In the bronze a selective corrosion takes place in the following order :—Lead, copper and tin. The metallic proportions in the rust will differ from those in the original alloy, becoming much enriched with copper. Montelius gives in his *Chronologie der ältesten Bronzezeit* (1900), p. 151, the analysis of two similar Egyptian rings, which are as follows :—

	(1)	(2)
Copper	79.51	16.23
Tin	9.65	75.66

The first ring seems not to have undergone much change, but the second one must have given up most of its copper into the rust. So we may see easily that it is not right to get rid of the rusts and submit what remains only to the analysis.

My way of analysis is therefore to clean a rusted article from its earthy dusts and take the whole with rust and metal never separated directly to test. This brings us of course to the metallic parts in too low percentages, which should therefore be recalculated for 100.

Even my method becomes open to objection in a case where the composition of the rusts has undergone changes by a partial solution or disintegration before analysis. It is not, properly speaking, a fault of this method, but a want of the right samples.

(a) *Mirrors*.—The ancient bronze mirrors may be divided into four classes, namely white, pale yellow, deep yellow and red, according to their surface colours. These differences in colour are dependent upon the amounts of tin becoming less and less, and correspond exactly with the chronological period in which they were made. In the most recent times zinc comes to replace tin, giving rise to the use of brass mirrors. The mirrors, belonging to the white and pale yellow class, were effective without further alloy, but those belonging to the other classes together with the brass had necessarily to be alloyed in mercury before use. Brass as well as bronze objects with less tin are, however, more easily cast, and they made their way probably with the invention of alloy rapidly over the Eastern lands.

The following is a summary of the analysis of the bronze mirrors differing in age and composition :—

No.	Sample,	Class,	Age and Place of Excavation.	Fig.	Copper,	Tin,	Lead,	Zinc.	Iron,	Arsenic,	Antimony,	Nickel,	Silver,	Gold,	Copper to Tin.
1	Chinese bronze mirror.	White	1st century (Han Dynasty); excavated in China.	Fig. 6	65.10	25.07	9.12	0.16	0.06	Trace	—	—	—	—	72:28
2	"	"	"	"	5	66.67	26.57	5.29	0.20	0.81	—	—	0.63	—	72:28
3	"	"	"	"	2	62.15	26.47	5.29	5.00	—	—	1.08	—	Trace	70:30
4	"	"	"	"	4	70.11	24.28	5.59	—	0.22	—	—	—	"	74:26
5	"	"	7th century (T'an Dynasty); excavated in China.	"	7	67.56	27.57	5.43	—	0.37	—	—	—	"	71:29
6	"	"	1st century (Han Dynasty); excavated in Japan.	"	—	62.99	24.12	3.97	—	2.63	—	1.88	—	—	72:28
7	"	"	"	"	—	67.22	25.44	0.61	6.73	—	—	—	—	—	72:28
8	"	"	"	"	—	65.82	28.72	5.05	—	—	—	—	—	—	70:30
9	"	"	"	"	—	68.63	30.69	0.69	—	—	—	—	—	—	69:31
10	*Japanese bronze mirror.	Pale yellow	6th century (made in Japan) excavated in Japan.	Fig. 8	67.03	22.45	8.99	—	—	—	—	1.62	—	—	76:25
11	Corean bronze mirror.	"	Not certain.	"	1	65.37	21.90	9.68	—	—	0.44	2.60	—	—	75:25
12	"	Deep yellow	10th century, excavated in Korea.	"	72.99	11.76	15.14	—	0.29	—	—	—	0.09	0.23	—
13	Japanese bronze mirror.	"	11th century, preserved in Japan.	Fig. 3	71.04	9.29	5.67	—	0.89	1.68	1.56	0.88	—	—	—
14	Chinese bronze mirror.	"	12th century (Kin Dynasty), found in China.	"	4	65.11	11.58	20.49	—	—	0.13	2.35	0.94	—	—
15	Chinese brass mirror	"	19th century (Ch'ing Dynasty), preserved in China.	"	10	74.00	3.29	7.59	12.96	—	trace.	1.81	0.35	—	—
16	"	"	"	"	—	58.52	5.58	7.66	23.29	1.78	—	—	3.17	—	—

As may be seen from the table, the white bronze was made from the first century, nay, probably from much earlier times, down to the seventh century. It contains 67 per cent. copper, 27 per cent. tin, and 6 per cent. lead on an average as its principal constituents, the ratio of copper to tin being 71 : 29 on an average; the alloy corresponds therefore to the ϵ -phase in the copper-tin state-diagram, which is a solid solution of tin in copper and known as the specular metal. The presence of lead might not be accounted for useless. It reacts with neither copper nor tin but remains intervened between the granules of the solid solution, acting as if it were a cement. I could make a very good bronze mirror with these compositions. Without lead the product is too brittle to be polished. Too slow cooling must naturally be avoided, in order to prevent the lixiviation of the lead. The ancients were, too, clever enough to avail themselves of the great hardness of the white bronze: the figures on the back of the mirrors of this sort usually consist of very fine but deeply cut lines, which have resisted wear for two or three thousand years, merely because they were so hard.

However bright by itself the white bronze mirror may be, its reflective power is not so great as that of a silver mirror, absorption of the light taking place very much in the blue. A determination with my imitation metal mirror gave the following figures:—Blue 40 per cent., yellow 50 per cent., and red 60 per cent. The objects reflected, therefore, seem much redder in colour than they are in reality.

(b) *Weapons*.—As the weapons must be hard and tenacious at the same time, the white bronze cannot be used for this purpose, and that the bronze with 10–20 per cent. tin suits best, seems a fact well known to the ancients. They knew, too, that in order to make the casting easier, some antimony could be added without losing hardness in any degree.

Two samples of the arrow heads of the Han Dynasty were analysed with the following results:—

	No. 1 (Fig. 10).				No. 2.	
Copper	-	-	-	-	74·47	73·12
Tin	-	-	-	-	10·82	16·15
Antimony	-	-	-	-	8·00	8·69
Nickel	-	-	-	-	3·68	2·04
Iron	-	-	-	-	3·03	trace
Arsenic	-	-	-	-	trace	trace

Since antimony dissolves in copper as equally as in tin to some extent, the above samples might be thought to be similar to one composed of 85 per cent. copper and 15 per cent. tin, or the like, ignoring the other small admixtures. But the alloys with such compositions have a quite different structure, as is well known from these of the arrow heads, one of which is shown in Fig. 10. An ingot with the same composition as the arrow head, No. 1, was prepared and quenched at 680° after half an hour's heating. Its structure was changed from the ordinary polygonal to the fine acicular, which is quite similar to that of the arrow head. Hardness of the bronze with 10 per cent. tin is only 12 in Shore's scale, while that of the arrow head, No. 1, is 15–17. My imitation sample was also 10–12 before quenching, but after quenching it had risen to 15. The ancients had probably no intention of quenching; they came to such a result unexpectedly by way of moulding.

A Japanese arrow head excavated in the Province of Tango, has the following composition:—

Copper	-	-	96·48		Lead	-	-	0·56
Tin	-	-	-	2·46	Arsenic	-	-	0·50

With such a composition, it is surely less sharp than those stated above. The age is not certain, but we have a bronze coin, *wadō kaihō*, made in the seventh century, which has almost the same composition, as shown in the following :—

Copper	- - -	90·28	Iron	- - -	5·60
Tin	- - -	3·20	Arsenic	- - -	0·03
Lead	- - -	0·28			

They might, perhaps, have some relation to each other.

Swords and halberds excavated in Japan and China were analysed, with the following results :—

Samples.	Copper.	Tin.	Antimony	Arsenic.	Nickel.	Iron.	Lead.	Copper : Tin.
Sword : Shantung, China.	73·34	19·84	3·80	0·55	2·47	—	—	78 : 22
Sword : Shantung, China.	69·31	12·55	2·30	3·01	3·52	1·37	7·92	84 : 16
Halberd : Shantung, China.	73·35	17·48	—	trace	—	—	9·17	80 : 20
Sword : Province of Chikuzen, Japan.	76·60	14·13	4·93	trace	2·93	0·09	1·32	84 : 16

The proportions of copper to tin are right, but the high percentage of lead in some of them is not desirable.

(c) *Musical Instruments*.—The bell metal, with a high percentage of tin, is sonorous but too brittle. The ancients were in the habit of using an alloy with rather less tin. The following is the composition of an excavated Japanese bell, which is said to be earlier than the eighth century A.D. at least :—

Copper	- - -	68·96	Iron	- - -	0·04
Tin	- - -	15·45	Nickel	- - -	1·35
Lead	- - -	5·63	Arsenic	- - -	trace
Antimony	- - -	8·32			

(d) *Statues*.—A little Buddhist statue, gilded, of the six dynasties (third century) was analysed, with the following result :—

Copper	- - -	82·90	Iron	- - -	1·38
Tin	- - -	9·93	Nickel	- - -	0·79
Antimony	- - -	2·60	Gold	- - -	0·71
Arsenic	- - -	1·68			

(e) *Money*.—The ancient Chinese coins contain generally less tin with much lead, so that some of them are scarcely to be called bronze. The following are the results of the analysis made with a few kinds of Chinese money current at the time of the "Spring and Autumn Annals," 722-481 B.C. :—

—	Copper.	Tin.	Lead.	Antimony.	Iron.	Arsenic.	Nickle.	Silver.	
Bell money	- - -	67·53	16·52	10·84	1·83	—	2·36	0·92	—
Knife money	- - -	46·22	9·25	43·53	—	0·73	—	—	0·27
" "	- - -	38·38	1·66	55·41	—	2·66	0·60	1·03	—
" "	- - -	45·93	2·12	48·60	—	—	1·72	1·63	—
" "	- - -	42·25	2·12	47·32	—	—	3·28	5·08	—
" "	- - -	64·65	6·76	21·25	—	0·41	3·88	3·04	—
Spade money	- - -	70·42	9·92	19·30	—	—	—	0·35	—

(f) Spoons, &c.—Corean bronze, called *sahari*, or sometimes sonorous copper, is usually seen in the form of spoons, water pots, &c. Very old spoons are usually covered with the velvet black rust, but seldom with the green carbonates. They give on analysis the following result :—

—	Copper.	Tin.	Nickel.	Zinc.	Arsenic.	Iron.	Lead.
Ancient spoon	73.77	24.04	2.19	—	—	—	—
Modern "	77.19	21.62	—	0.20	—	—	—
Ancient water-pot	77.89	19.35	—	—	3.82	0.09	0.77

The alloy is therefore similar to the pale yellow bronze mirror. They show sometimes a very beautiful structure consisting of large crystals α and ϵ . The alloy is strongly resistant against rusting and suits well for the purpose which the Coreans intended.

3.—IRON SWORDS.

Japan has excelled all other nations in its art of making iron swords. There have been handed down several different ways of welding, one of which will be here briefly described.

A sword maker prepares at first a plate of iron some two inches square, with a high carbon content, upon which he piles up iron in pieces with a higher or lower carbon content. The whole is made red hot in a charcoal fire and welded to make one mass. Another mass of the same sort is formed. The one is laid upon the other and welded together to a solid block of the same size. The latter consists, therefore, of two layers of iron with somewhat different carbon contents, which are united only incompletely through slags or rusts between these layers. It is then heated, bent in the middle, and hammered to a block of about the same size. Repetition of such a process increases the number of the layers theoretically by the rate of 2^n , the value of n , i.e., number of times of the repetition, being in practice 10 to 15.

A similar process is then taken for iron with very low carbon content, n being this time usually 5–8.

The blocks are then welded together, one upon the other, and bent into two with the soft iron part inside, the section being as in Fig. 11.

The size of the block varies according to the length of a sword, being usually taken in the ratio of 50 grammes for one inch. It is then prolonged in the direction perpendicular to the section and finished to a required form. If n be 15 on the outer side and 5 on the inner, the theoretical number of layers amount to 10–12, most of them becoming, however, entirely united.

Those layers left are still sufficient to form fine annular or fibrous structures on the polished surface of the Japanese swords; they are not only decorations to the sword, but also a sign of its strength against bending or breaking.

We may recognise now some resemblance to damascened steel. If the Japanese learned this method of welding from the naturalised Chinese, as before mentioned, where had the latter learnt their art? Whether it was their own, which made its way westward to Europe through India and eastward to Japan, or whether, on the contrary, they learned the art from India, is not now to be settled.

The author is much indebted to his friends Mr. Fukuda, Mr. Matsuno and Mr. Harada for their kind help in most of the analyses given above.

MATSUMI CHIKASHIGE.

France.

Bonser.

Three Annual Fêtes at Boulogne. By *Wilfrid Bonser.*

82

The three chief fêtes which are kept in Boulogne are those of Corpus Christi, the Sacré Cœur, and the Assumption. In each case the ceremonial and the procession are put off till the Sunday following the actual day, so that all may be free to take part. These festivals were continued during the war, and as I was quartered in Boulogne during the whole of 1918, I had the opportunity of seeing them.

On Corpus Christi day itself (Thursday) the Cathedral was decorated with banners, divided vertically, half white, half red, and ending in two points. The banners were fixed in threes to the piers. There was an early morning mass. A priest in a yellow and gold chasuble lined with scarlet officiated, and was assisted by two others in dalmatics of the same colours. There were also four boys in scarlet cassocks and white surplices. The choir, which consisted of two men only, was in the organ-loft at the west-end of the church instead of in the choir as usual.

On the same day S. Pierre, the church of the fishing quarter, a modern Gothic building and very lofty, was hung with huge fishing-nets, each stretching across two bays of the nave. They were attached under the caps of the columns and to the bosses of the vaulting.

On the Sunday following (June 2), mass was celebrated at 8.30 a.m. in the Cathedral. The decorations were the same as on the Thursday, with the addition of many large processional banners, which depicted Notre Dame de Boulogne, etc. There was a special Suisse, arrayed in scarlet with white stockings, in addition to the one usually in attendance. At the end of the service, the Bishop (of Arras, Boulogne and S. Omer) arrived, and a procession was formed, consisting of ecclesiastics and also of the congregation generally, with banners carried at intervals. Last came the Cathedral clergy in their richest vestments, the Bishop himself being last of all. He walked under a canopy, as he carried the Host in a rich gold monstrance. The route was strewn with grass and flowers—mostly yellow iris. The houses on each side of the way were all decorated with large white sheets; some had crimson hung on top, and many had small bunches of flowers pinned on to them in rows. In some places fishing-nets were hung up instead of sheets. We went from the west doors of the Cathedral along the Rue du Chateau, the Rue S. Martin—which is the most picturesque one in the old town—and the Rue d'Aumont, into the Place Godefroi de Bouillon, which, in spite of its size, was almost filled. There were various choirs in the procession. An “altar of repose”—since this is a continuation of the Maundy Thursday service—had been erected in the Place on a decorated platform in front of the Palais de Napoléon. The Bishop and three priests conducted another short service before this altar, all in the square joining in the singing. The procession then re-formed and passed by the Rue S. Jean back to the Cathedral.

The same morning a similar procession passed through the streets of Wimereux, the seaside resort a few miles to the north of Boulogne. It was composed mostly of children. Some small boys were dressed in sheepskins, and one girl was in silver-paper armour to represent Joan of Arc. Three boys represented the three Magi, and various girls carried the instruments of the Passion. One also carried a model of a ship (stern first, though this perhaps was accidental).

The Fête du Sacré Cœur was celebrated on the following Sunday (June 9). In the morning there was a procession at Le Portel, the fishing suburb to the south. This again was mostly composed of small children; many were dressed to represent Biblical characters. One boy was habited as a monk in a black hood over a white gown with a rosary. There were many boys in red cassocks, and some, dressed as sailors, carried anchors and oars. Some bigger boys carried the

model of a schooner. The dresses, headdresses and shawls of the women were very rich. One girl represented Joan of Arc, and others scattered rose-buds.

In Boulogne the procession was confined to the fishing-quarter. The streets are extremely steep, and the procession went downhill and returned up-hill, covering some three-quarters of a mile. The route all along was decorated with huge fishing nets, all new and clean. They were hung in festoons in front of the houses slightly looped up over the doorways. In many places the streets were also roofed with nets. At one of the steepest parts a large altar was erected and raised on steps. The streets are highly picturesque always, and more so now, having quite a mediæval atmosphere. Chairs were placed in front of the houses along the line of route, and old fish-wives sat there and marshalled their families in autocratic style to see the show. Each was decked out in her richest cap, often of extremely valuable old lace, which spread out round her head like a huge fan. The inhabitants of the fishing-quarter seem to be a folk apart from the other people of the town, and they speak a patois of their own among themselves. It is said they are a mixture of Spaniard and Fleming.

The church of S. Pierre was decorated with nets as it was for Corpus Christi. After the service there the procession was formed outside. In front of it marched a gorgeous Suisse in a cocked hat, carrying a halberd in one hand and a gold-headed stick in the other. He was dressed in blue, trimmed with gold, and had large gold epaulettes. Across the breast he wore a broad band of red, ornamented with gold, and altogether he was a most magnificent personage. There were a good many children in this procession also. One boy was a monk in a brown gown, with white shoes and stockings, and a belt made of rope and corks. Some boys, dressed as sailors, carried a sailing vessel: some girls were dressed as various saints, and others carried a crown of thorns on a cushion. There were many Augustinian nuns in their habits, and lay sisters telling their beads as they went along. Each group had its banner, inscribed with the name of the Association to which it belonged. Last came the priest—the saintly *Predicateur* of the Cathedral in this case—carrying the Host in a gold monstrance, and walking under a canopy.

At the east end of S. Pierre another altar was erected for an outdoor service to conclude the proceedings.

The Fête of the Assumption is, however, the greatest religious festival of the year as far as Boulogne is concerned, since it is in honour of *Notre Dame de Boulogne*, "Patrona nostra singularis" as she is there called. On the day itself (Thursday, August 15th) there was a procession round the top of the battlements of the old town, and the Cathedral was hung with pale blue and white banners.

But the big procession was again postponed till the following Sunday. This need not be described again in detail. The most picturesque feature in it was the contingent of women from Le Portel in their rich and peculiar costume, which consists of a close-fitting cap, a shawl of many colours, and a purple apron over a red skirt. The miraculous hand of the Virgin—all that now remains of her famous image—and the silver boat containing her statue were also carried in the procession, together with fifteen shields representing episodes in her life.

Perhaps a few words should be added in conclusion, relating to *Notre Dame de Boulogne* and the pilgrimages to her shrine.*

The arms of the see of Boulogne, as seen in the head of her bishop's crozier, over the Porte des Dunes and in many other places in the town, are the Virgin and Child standing (originally sitting) in a boat, with an angel on each side of her. According to the legend, this boat containing the statue of the Virgin arrived by

* For a full account see F. A. Lefebvre: *Histoire de Notre Dame de Boulogne et de son pèlerinage*: 1894.

water "from the East" in the time of Dagobert I. (in 633). Another more explicit tradition says it was made by St. Luke, that it used to be revered at Antioch, and was despatched thence under the care of angels, to prevent its falling into the hands of the invading Saracens. It was an object for pilgrimage throughout the Middle Ages, no less than fourteen kings of France and five of England visiting the shrine. When Boulogne was sacked by Henry VIII. the image was carried away to London, but it was restored a few years later. The Cathedral was destroyed at the Revolution, and the miraculous statue with it. All that remains is a small portion of a hand, which is placed under the dome in the present Cathedral. The number of pilgrims who still visit the shrine each year is greater than the number of tourists who go to Boulogne.

Notre Dame de Boulogne is called "Queen of the Sea," and is the patroness of sailors. She is one of the many local boat-saints whose cult is so widely distributed over the world. Most come originally from the East and are probably connected with, and derived from, the cult of the Egyptian boat of the Sun.

The reverence for Notre Dame de Boulogne felt in Paris at the beginning of the fourteenth century was such that a church was founded in her honour at the village of Menus, near S. Cloud (1320), so that pilgrimages might take place when Boulogne itself could not be visited, as was often the case in those unsettled times. This church was Boulogne-sur-Seine.

Other churches dedicated to Our Lady of Boulogne and called "*lieux de pèlerinage secondaire*" were:—near Blois—"a priory of the order of Grammont, called Boulongne": another a few miles from Montdidier at a village surnamed Boulogne-la-Grasse; and at Boulogne-sur-Gesse near Toulouse: but in none of these cases are there any remains of the cult left to-day.

It is also stated that the church of St. Mary at Leith was originally dedicated to Notre Dame de Boulogne. The first notice of this church appears in 1490 (when it is called "*Nova Ecclesia*"), a date at which Leith was a port of communication with France. The town also bears on its arms the Virgin and Child in a boat. The Virgin is here represented seated, as in the earlier Boulogne examples, but there are two masts at the sides of the Virgin instead of the two angels.

WILFRID BONSER.

Europe: Ethnography.

Durham.

Ritual Nudity in Europe. By M. E. Durham.

83

The very interesting article on Nudity in Indian Custom and Ritual in the Journal R.A.I., Vol. XLIX, recalls to my mind two examples of ritual nudity related to me in North Albania in 1913. In neither case did I see the ceremony performed, but I was told of it as being by no means uncommon among the more remote mountain tribes. One of my informants was an Austrian priest who was making a careful study of the customs of the tribes among whom he had worked many years. He had himself seen the ceremonies. My dragoman, a native of Scutari, assured me that it was an accurate account.

I. When a new house is built and is ready for habitation the hearth has to be kindled for the first time ceremoniously. The fire is laid on the hearthstone: no person may remain in the house; the family gathers outside; the house lord (*zoti i shpis*) strips stark naked, takes a loaded pistol and enters the house alone. He fires the pistol into the specially prepared fire, and, when it burns up, goes out, dresses, and the whole family takes possession of the house.

II. When a new pair of oxen are yoked together for the first time the *zoti i shpis*, similarly, has to plough the first furrow with them nude. These are very probably the only nude rituals practised in Europe (if indeed they are still practised, as the regions have been devastated by war), and seem, therefore, worth recording.

I may add that the men living along the Drin and in the habit of crossing it by swimming by the aid of inflated sheepskins, showed no self-consciousness whatever about being seen nude. At Apripa Gurit I was ferried over the river in a rude dug-out. One of the ferrymen, who was stark naked, sat down by me and chatted affably. He undertook to guide us on to the next village, sent a boy back over the river to fetch his very best clothes, and sat talking to us till they arrived, when he took three quarters of an hour to array himself. On another occasion I was walking with the Franciscan of the Dushmani tribe, when ahead of us appeared a man ploughing in a most exiguous shirt, for the weather was very hot. The Franciscan, much embarrassed, shouted to him to clothe himself, for "a maiden is coming!" The man replied, "Let her come," and went on ploughing. M. E. DURHAM.

Obituary.

Breton.

Dr. S. A. Lafone y Quevedo. By A. C. Breton.

84

The death of Dr. Samuel Alexander Lafone y Quevedo, notified by the Academic Council of the Institute of the Museum in the University of La Plata, on June 18th, 1920, creates another gap among the pioneer ethnologists of Argentina. Like Moreno, Ambrosetti, Ameghino, he worked hard to collect materials in that country and to make them known, and had the advantage of his position to secure publication. Consequently, we have to thank him for a great increase in available matter, both linguistic and archaeological. Though English was his paternal tongue, his Spanish was equally good, and most of his works were written in that language. He was also most generous in encouraging and helping other workers on the same subjects.

His father was one of the Scotch Lafones, his mother a Quevedo, and in accordance with a common Spanish and Spanish-American practice he adopted both surnames.

Born in South America, he was sent to school in England and entered St. John's College, Cambridge, in 1854, took his B.A. degree in 1858, the M.A. in 1863, and was a member of the Senate of the University until his death. He was proud and appreciative of his English connections.

Returning to Argentina he became connected with the museum of the Faculty of Natural Sciences in the University of La Plata. This University is in the city of La Plata, a short distance from Buenos Aires, which also has its own university and museum. Both museums have very fine ethnological and archaeological collections, showing how important Argentina was before the Spaniards came.

Dr. Lafone y Quevedo followed Dr. Moreno as Director of the La Plata Museum. He was Dean of the Faculty of Natural Sciences in that University and also professor of linguistics. In the University of Buenos Aires he was professor of American archaeology and linguistics, and was made a doctor, *honoris causa*, in the Faculty of Philosophy and Letters of that institution. In 1912 he came to England for the 18th International Congress of Americanists, held in London, when he was a delegate of the Argentine Government, of his university and museum, and also of the University of Buenos Aires. In 1910 he had been active in welcoming the Americanists to the 17th Congress at Buenos Aires and La Plata.

The British Museum catalogue has over twenty entries under his name, but many more were published in the course of years in the Revista and Annales of the Museum of La Plata. He was especially good in editing and writing introductions to other men's papers, and with such diverse subjects demanding immediate attention, he seems never to have had leisure for a single great work of his own. He studied especially the languages and dialects of the Chaco and had two papers on them in the Proceedings of the 18th Congress of Americanists. His *Viage arqueologico en la region de Andalgalá*, 1902-3,* is an excellent specimen of his careful investigations

* Revista, Museo de La Plata, Tomo 12, reprinted separately.

It has 18 plates, chiefly of potsherds dug up there, and should be studied for the several distinct types represented, varying from a rudely incised grey ware to three-colour designs like those of Crete. There is also (Plate XV.) a ware with black figures on a ground of incised lines which appear light. All who knew Dr. Lafone y Quevedo will regret the passing of a very kindly personality, a true English gentleman.

A. C. BRETON.

REVIEWS.

Grant.

Ethnology.

The Passing of the Great Race: or the Racial Basis of European History. By Madison Grant. Pp. ix+245, with 4 folding maps. Svo. New York: Charles Scribner's Sons, 1916.

For nearly a century the terminology of the linguist has held sway, while political writers and speakers have emphasised so insistently the distinction of Celt, Teuton and Slav that Europe has been the scene of wars and rebellions from which it has not yet wholly emerged. It is refreshing, therefore, to find a writer who will summarise history in terms of race rather than language.

In the first part of his work, Mr. Madison Grant discusses Race and Democracy, the Physical basis of Race, Race and Habitat, the competition of Races, Race, Language and Nationality, and Race and Language. In these chapters, while he has, perhaps, little to say that is new to the anthropologist, he has made a clear statement of the case which should be of the utmost value to the lay public.

In the opening chapters of his second part he gives a brief sketch of man's early history from the time of *pithecanthropus* and "eoliths," on the subject of which he takes up a cautious position, to the dawn of historic times. For the palaeolithic age he takes as his guide Dr. Henry Fairfield Osborn, who contributes a short preface to the volume, but he does not seem to realise that the men of the Aurignacian period by no means all belonged to the Cromagnon type. During the neolithic and subsequent ages he is left without this guide, and we find that he has confused the *palafitte* and *terramara* cultures of North Italy, and some of the dates that he gives are rather wild, e.g., 1500 B.C. for the Hallstatt iron culture.

Then follow three chapters on the three chief races of Europe, in which the author follows closely in the steps of Ripley, and, like that writer, scarcely recognises the extent to which Mongoloid peoples have affected the north-east corner of the continent. He hardly realises how great is the distinction between the Western Alpine and the Eastern type found in the Balkan peninsula, nor does he seem to have heard of such intermediate types as the Beaker-makers. Nevertheless, the account that he gives of the early movements of these races seems to fit fairly well with the evidence available for the moment.

It is only when he comes to treat of the later movements of the Nordic peoples that he tends to forget his own maxims as laid down in his earlier chapters. There is abundant evidence that the wanderings of the Teutonic tribes in the early centuries of our era did not give rise to a wholesale displacement of the former population, but changed merely the language and the governing class. Doubtless, Mr. Madison Grant would acknowledge this, yet his text as it stands, and still more his otherwise admirable maps, leave the impression on the reader that invasions by Goths and Franks caused a complete change in the population.

Lastly, he attacks the question of the Aryan "cradle," about which most writers have kept silence for two decades. He states clearly his view that the Aryan tongues belonged originally to the Nordic race, and though there will be dissentients, the whole trend of opinion, though not yet publicly expressed, has for some years been in this direction.

Throughout the whole of his work he does not disguise the fact that his preference is for the Nordic race; in fact, it is for him the race *par excellence*—the Great Race; his admiration for it is unqualified, and in this he surpasses Gobineau. His fear is that the Great War may so diminish this race of supermen that they may never recover from the strain, and that the world may be left to Mediterraneans and Alpines to control as best they may.

While many readers will find statements in this work that need qualification, and will disagree with some of the opinions expressed, all will appreciate a clear, concise and fearless account of the history of the European peoples from an anthropological standpoint.

H. J. E. P.

General Anthropology.

James.

An Introduction to Anthropology. By the Rev. E. O. James, B.Litt., F.C.S. **86**
Macmillan & Co., Ltd., 1919.

This little book will do good service if it enable the general reader, who is no specialist, to appreciate the aims and methods of anthropology. It is written primarily for the student, but for this purpose it is, perhaps, too much in outline, but the educated public will find it valuable as a general summary of the subject.

In some ways the sub-title, "A general survey of the early history of the human race," better describes it, for it begins with the evolution of man and traces the gradual growth of civilisation up to the time when man first began to record his own doings. Much of the work is, of necessity, based upon the evidence derived from prehistoric archaeology, and the greater part is devoted to the consideration of human origins, and to a description of the palaeolithic period. The subsequent development of human culture is treated with less detail, and the author seems less sure of his ground.

Two chapters, however, are based upon the results of the study of backward races. One of these, "The Manners and Customs of Primeval Man," is concerned largely, perhaps too largely, with the doings of the Australian aborigines and their complicated marriage regulations. This interesting but very special subject rather over-dominates the remainder of the chapter, and is made to lead up to criticisms of the recent proposals to amend the divorce law. The chapter on "The Religion of Primeval Man" is highly controversial, and the views expressed by the author will not meet with general acceptance.

Excellent as the work is in many respects, one cannot fail to notice a number of details which somewhat impair its value. For instance, one may doubt whether Professor Keith considers that he "adopts the view that the Neanderthal type is "ancestral to the modern" (p. 57), or that he has shown that "the physical "features of neolithic man bear a remarkable similarity to those of the Cromagnon "species" (p. 63).

Again, the author ignores the evidence of the Ofnet skulls when, on page 63, he asserts that brachycephalic skulls do not appear until long after the palaeolithic age, while to say (p. 66) that the neolithic period is characterised by ground and polished flints is somewhat misleading; further, in arguing that there is no evidence for the arrival of new people at the dawn of the neolithic age (p. 83), he is ignoring the whole question of Caspian culture.

Several other inaccuracies must be mentioned: Mugem (p. 144) is in Portugal, not in Spain; it is wrong to say (p. 154) "sepulchral remains do not exist in Central Europe," megalithic remains do not; (p. 193) copper knives are found in predynastic tombs, and so were known in Egypt long before the 4th dynasty, while it is doubtful whether bronze was known there before the fifth. One would like to know the evidence for the surprising statement (p. 194) that China was probably

in the Bronze Age as early as 3000 B.C., and why the author considers it "highly improbable that the bronze industry was evolved in any one place."

Lastly, what authority is there for assuming (p. 199) that the knowledge of iron spread to Etruria as early as 1400 B.C., or (p. 200) that Hallstatt ornament was an oriental style? There is surely some error (p. 204) in saying that the decay of the coral industry was apparently due to the cessation of trade between the Mediterranean and India, owing to the conquests of Alexander; it is usually supposed that at that time all the Mediterranean coral was being exported to India. The Glastonbury lake village is usually believed to date between 100 B.C. and A.D. 100, and not (p. 210) 300 B.C., many people will be surprised and annoyed to read (p. 220) that all the higher races of men are brachycephalic, while the statement (p. 220) "numerous round-headed people known as the Mediterraneans" will come as a great shock to Professor Sergi; others will be surprised to learn (p. 225) that the Umbrians passed south into Italy during the Bronze Age.

When this work reaches a second edition the author will no doubt correct the many misprints such as Stagodon for Stegodon (p. 37), martial for marital (p. 125), Laugine-Basse for Laugerie Basse (p. 144), 12000 B.C. for 1200 B.C. (p. 198), and Syria for Styria, Cilicia for Galicia or Silesia (p. 201).

H. J. E. P.

India.

Rose.

A Glossary of the Tribes and Castes of the Punjab and the North-West Frontier Province. By H. A. Rose. 3 vols. Lahore, 1911-19. price £1 2s. **87**

This account of the tribes and castes of the Punjab and the North-West Frontier Province falls into two parts: a Glossary, alphabetically arranged, of the castes and tribes, occupying the second and third volumes; the first containing a description of the local religions, cults and folklore. In his title-page Mr. Rose describes his work as based on the Census Reports of the Province prepared by Sir Denzil Ibbetson in 1883 and by Sir E. Maclagan in 1892. The former, portions of which were reprinted under the title of "Punjab Ethnography," which has long been out of print, is one of the best examples of accurate field work in Indian anthropology; the latter is remarkable for the collection of valuable information on the local cults and the Faqirs of the Province. Mr. Rose modestly makes no reference to his own Census Report published in 1902, which maintains the high standard set by his predecessors.

The first volume of the present work is of special importance as it contains the only comprehensive account of religious beliefs and folklore, while the other volumes devote special attention to caste and tribal organization. No attempt has been made to deal with physical anthropology, or to discuss the origin of the many strains of blood which flow in the veins of the present inhabitants. As a whole, the work deserves hearty commendation, and the additions made by Mr. Rose to the material collected by his predecessors are large and interesting. The portions deserving special attention are the account of Islam modified by local conditions, and of the cults of Siva and the Mother-goddesses, particularly in the hill districts. Much of this is new and of great importance. The hill districts contain a number of tribes whose religious beliefs and social structure are of a primitive type, and it would be useful to students if this part of the material were embodied in a special monograph, with side-lights from the local annals, epigraphy and antiquities.

Mr. Rose shows throughout the work unfailing energy in the collection of facts. Unfortunately the Local Government seems to have pressed for the immediate completion of the Glossary, and the author, occupied in other responsible duties during the time of compilation, has not enjoyed the opportunity of displaying his material in a more attractive form, or of basing on it a comprehensive sketch of the religious and social position. But perhaps it is as well that he should have

contented himself with placing the facts on record, and leaving to others the task of interpreting them. It is also to be regretted that the book has been issued in an unattractive style. The work of the local press leaves much to be desired, and the author's absence on war service prevented him from attending more closely to the proof-reading. The book, in the absence of maps and illustrations, is not to be compared with the *Tribes and Castes of the Central Provinces* by the late Mr. R. V. Russell, which the Local Government wisely entrusted to an English firm of publishers. But, with these reservations, the Glossary contains many admirable features, and it will serve as a quarry from which anthropologists will derive information on the cults and sociology of one of the most interesting Provinces of the Indian Empire.

W. CROOKE.

ANTHROPOLOGICAL NOTE. BANTU ETHNOLOGY.

88

*The establishment of a School of Bantu Ethnology in the University of Cape Town.
Copy of the letters from the Union Government of South Africa.*

The following letters have been received in reply to representations made to the Union Government of South Africa in reference to the urgent necessity for the official recognition and organisation of the scientific study of the native population:—

32, Victoria Street,

Westminster, S.W. 1,

SIR,

30th September 1920.

REFERRING to your letter dated 24th June last, and my reply of the 6th July on the proposed investigation of physical characters, language and customs of natives, I am directed by the High Commissioner to forward herewith, for the information of Members of the Institute, a copy of a communication received from the Secretary for Education of the Union, dated the 14th August.

I am, Sir,

Your obedient Servant,

The President,

(Signed) F. H. SARGENT,

Royal Anthropological Institute,

Secretary.

50, Great Russell Street, W.C.1.

The Secretary for Native Affairs,
Pretoria.

Union Department of Education,
Union Buildings, Pretoria.

BANTU STUDIES.

WITH reference to your Minute No. F. 639 of the 6th instant, enclosing a letter from the Royal Anthropological Institute, I have the honour to state that the Union Government has been impressed by the great and urgent need for careful and scientific investigation of the ethnology, history, languages, customs and religions of the Bantu race. Requests have been received from several University centres for aid in establishing Professorial Chairs dealing with these subjects, but on the recommendation of a Departmental Committee the Government has decided that it is wise for the present to concentrate such work. It has therefore agreed to render substantial aid in the establishment of a school of Bantu Life and Language in connection with the University of Cape Town, and a representative Committee (including the Secretary for Native Affairs) is now discussing the general scheme. It is probable that professors of Bantu ethnology and of Bantu languages will be appointed in the immediate future as a nucleus for the school, and that they will take part in and guide such research work as has been suggested by the Royal Anthropological Institute.

(Signed) PERCY COLEMAN,

F/Secretary for Education.



FIG. 1.—THE COTHON OF MOTYA.



FIG. 2.—THE SOUTH-EASTERN STAIRCASE, MOTYA.



FIG. 3.—TYPE OF ISODOMON WALL, MOTYA.



FIG. 4.—NATIVE POTTERY (PHENICIAN) AT MOTYA.



ARCHÆOLOGICAL RESEARCH AT MOTYA.

FIG. 5.—NATIVE POTTERY (PHENICIAN) AT MOTYA.

ORIGINAL ARTICLES.

With Plate M.

Sicily: Archaeology.**Whitaker.****Recent Archaeological Research at Motya. By J. J. S. Whitaker.****89**

With the exception of a few articles and letters which from time to time have appeared in some of our English newspapers, as well as those of other countries, little has, so far, been published concerning the archaeological work which has been carried out at Motya of recent years. This work was commenced in 1906, but unfortunately, like many other undertakings, was interrupted and almost brought to a standstill by the war of 1914.

The only publication of any importance on the subject is one, in Italian, by Prof. B. Pace, of Palermo, which appeared in the *Notizie degli Scavi* of the R. Accademia dei Lincei for 1915, under the title of *Prime note sugli Scavi di Mozia, 1906-1914.*

In the course of the excavations which have been carried out at Motya since 1906, however, a good many discoveries of interest have been made, some of them, indeed, being of sufficient importance to be brought before the archaeological world as supplying information regarding a hitherto comparatively little explored spot.

The site of Motya is undoubtedly an interesting one to archaeologists, for in its sudden and complete disappearance from history, Motya differs from its sister cities in Sicily, as well as from most other ancient towns which have suffered the fate of the vanquished. Unlike those cities, which have passed from one domination to another without any sudden or abrupt change, yet gradually, in course of time, have undergone a thorough transformation, Motya, once overthrown and destroyed, ceased to exist as a town and, so far as we know, even as an inhabited spot for many centuries, its very name lapsing into oblivion. Its ruins, or such of them as were allowed to remain on the island, were probably, for sanitary or other reasons, filled in with soil and débris immediately after the great siege and slaughter, and time will gradually have completed the work of interment, hiding them from view and preserving them intact, as on the day they fell. For this reason, Motya probably shows more remains of an old Phoenician town still standing *in situ*, untouched save by the husbandman's plough, than any other site we know.

Before dealing with the excavations, perhaps it may be not amiss to mention that the small island, which must undoubtedly have been the site of the ancient Phoenician colony of Motya, and which for many years past has been known by the name of the island of San Pantaleo, is situate in the middle of an inland bay called the Stagnone di Marsala, on the north-west coast of Sicily. Excavations here are necessarily subject to the approval of, and must be carried out under the supervision of, the Italian authorities.

With regard to the archaeological work that has been carried out at Motya of recent years, it may be stated that, before attempting any absolutely new exploration, or breaking fresh ground, so to say, our first thought was to bring into clearer evidence the ruins and discoveries of former years. With this object in view, we therefore devoted our chief attention first to the exploration of the fortifications around the island, and then to the ruins and vestiges of two gateways which had previously been met, one on the north, the other on the south side of the town.

The first satisfied us as to the fact, not previously positively ascertained, of the fortifications having originally extended completely round the island, and further showed that, in addition to the circumvallation wall, there must have been numerous strongly built advanced towers or bastions along the line, the whole forming a defence system which would have rendered any town, in those early days, an all but impregnable stronghold.

The fortification walls are of different types of construction and in many parts show signs of having been strengthened at a date or dates subsequent to their original erection. The advanced towers or bastions appear to have been usually formed, at least in part, of massive natural blocks of stone or rock, some of which measure as much as three metres in length by one metre in width and about the same in depth. A good example of this construction is afforded by the towers of the northern entrance to the town.

It is probable that towards the latter period of Motya the town defences must have undergone a thorough overhauling, for in several parts are to be seen excellently built isodomon walls, placed immediately in front of the older walls. These isodomon walls show the best Greek workmanship, or in any case Greek influence. We know from Diodorus that Greeks were living at Motya during its latter period and just before the great siege which ended in the downfall and destruction of the town. Evidence of the severe fighting that must have taken place during this memorable siege is apparent in the numberless spear and arrowheads which have been found in various spots by the fortification walls. Even now such fragments of weapons may be picked up any day, after a heavy shower of rain.

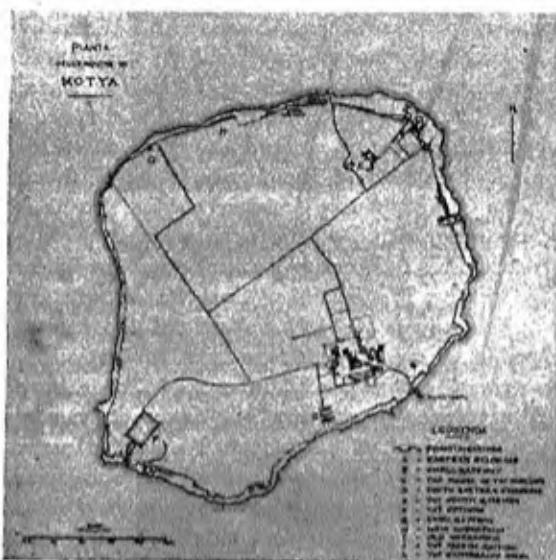


FIG. 6.—MAP OF ISLAND OF MOTYA.

two well-built sandstone staircases were brought to light. These probably served for the use of the garrison of the city. One of the staircases shows two flights of steps, numbering in all twenty-three steps, and is flanked on either side by bastions of considerable importance. The other staircase is a smaller one, of only a single flight of eleven steps. Adjoining it is a building, probably a guard-house, which shows a typical style of construction in Motyan dwelling-houses, formed by high upright blocks, filled in with smaller material between them.

One of the principal and most interesting discoveries at Motya has no doubt been that of the northern gateway of the town, with its two advanced towers, which even in their present ruined state stand forth boldly in their rude grandeur as an example of the bulwarks of a past age.

Following upon the work of bringing these two towers into full evidence came the discovery of the actual gateway, or, as it would be more correct to say, the series of gateways. First of all, lying almost immediately at the back of the towers, was found an outer gateway, formed by two small apertures, running parallel with each other and separated by a central partition wall between them. Then, still further back, and at a distance of about 22 metres behind the outer gateway, just mentioned, is an inner gateway, or series of gateways, formed by six small apertures, lying in pairs, one behind the other, the three pairs, as in the case of the outer entrance, being separated by a central partition wall running between them.

The outer approach recalls to one's mind the Athenian dipylon, while in the inner one we apparently have a good example of a hexapylon. The Syracuse hexapylon was probably like our Motyan one. Certainly an extended line of six gates, lying parallel with each other would have constituted a manifest source of weakness, while one can hardly imagine a series of six apertures one behind the other.

The north gateway, communicating as it did with the opposite mainland coast by a road or causeway, was no doubt the principal gateway of Motya, and the road or street, leading from it inland, was also probably the main thoroughfare of the town, extending possibly right across the island to the southern shores.

Some important ruins have been discovered about one hundred metres inland of the north gate and on the line of this roadway. The ruins here belong to what must have been buildings of considerable size and excellent workmanship, possibly the remains of a temple, but they have not yet been sufficiently opened out to allow us to speak of them with any degree of certainty.

Turning to the south of the island, I may say we have brought into fairly clear evidence the remains of the southern gateway, traces of which had already been discovered. At first sight this gateway would appear to have been formed by a single wide aperture, but more careful investigation has led us to think that it may perhaps instead have resembled the northern entrance in being formed by two small apertures, lying parallel with each other, and separated by a pylon in the middle, or that it may possibly, although originally formed by a single wide aperture, have subsequently been reduced to more modest proportions.

This southern gateway is flanked by bastions of considerable importance on either side, and when its embattled walls and towers were standing, the whole frontage must have presented a remarkably fine and imposing appearance.

Evidence of the efforts made by the besieged Motyans to defend themselves against their assailants during the last great struggle is clearly shown here, for the gateway, when opened out, was found to be barricaded by a rough and, apparently, hurriedly built wall stretching across and completely obstructing the passage.

Within a short distance to the west of the south gateway the important discovery was made of a small artificially built harbour, or cothon, connected with the sea by a fairly wide channel and with well-constructed quays on either side.

The cothon is of a rectangular shape and measures 51 metres in length by 37 metres in width. As in the case of the gateway, just mentioned, here also is to be found evidence of the Motyans' efforts to defend themselves during the great siege, for the channel, in one spot, is blocked by large stones, purposely laid across it.

One of the few spots not actually on or adjoining the sea-shore, where excavations have been made at Motya, shows the ruins and foundations of what would appear to have been a dwelling-house of some importance. This house would seem to have been one built by Greek architects and possibly by Greek workmen, and may be



FIG. 7.—MAP OF THE BAY OF MOTYA, THE SO-CALLED STAGNONE DI MARSALA.

looked upon as belonging to a late period of Motya's history. Adjoining a peristyle is to be found a most interesting mosaic pebble pavement, showing a combination of Phoenician picture panels and Greek decorative borders.

It remains for me to allude to the cemeteries of Motya. Up to the time of our undertaking recent research work no burial ground had been encountered on the island, and the necropolis at Birgi, the district on the mainland to which the causeway leads, had been regarded as the only Motyan cemetery. In the year 1907, however, when excavating along the line of fortifications to the west of the north entrance to the town, another necropolis was brought to light which must undoubtedly have belonged to an early period of Motya's history.

Unlike the Birgi necropolis, which is almost entirely on the principle of inhumation, this recently-discovered island cemetery is one of the basis of incineration, though a few sarcophagi, with inhumated remains, have been found in one part of the ground. They are probably the latest burials effected in the old cemetery, dating from, or just before the time of, the change to the new necropolis on the mainland.

The burials in the early island necropolis are chiefly formed by cinerary urns, containing the cremated remains of the dead, with the usual accompaniment of smaller subsidiary vases around them.

Those in the later mainland necropolis are almost entirely formed by sarcophagi, with inhumated remains. A few, but very few, cinerary urns have been met with there. Several of the tombs at Motya contain articles of jewelry and some contain weapons and fragments of arms of warfare.

With regard to the date of these cemeteries, it seems probable, judging from the pottery that has been found in them, that the early island necropolis continued in use until 650 B.C., or perhaps even as late as 600 B.C., when the later mainland necropolis was resorted to, and this latter no doubt continued to be used until the fall of Motya in 397 B.C.

In connection with the Motyan cemeteries, reference must be made to a highly interesting, possibly an unique, discovery which has recently been made at Motya, though it is premature to say much about it yet. The discovery consists of a burial ground, in which the burials are formed by single urns, the contents of which, so far as it has been possible to determine them, are formed almost entirely of the cremated remains, not of human beings, but of domestic and other animals! An analysis of about a score of these burials would show that one only contains human remains, those of an infant, while the others all contain the remains of inferior animals, among them those of ruminants somewhat predominating, though those of dogs, cats, and even of a monkey, are represented.

The date of these burials, as shown by several coins that have been found in the urns, belongs to the last period of Motya. If an opinion may be hazarded regarding this strange burial ground, it might be that it served for the burial of the remains of victims that had been offered as sacrifices to the pagan deities.

In conclusion, it may be stated that a small museum has been erected at Motya, in which, besides the local collections of the island and the Birgi necropolis, are preserved many objects of interest from Lilybæum.

Among the pottery in this museum are several interesting types of vases, some of which would appear to be peculiar to Motya, or to Motya and Carthage.

A fine piece of archaic sculpture in stone, found at Motya, is also preserved here, showing a bull attacked by two lions, a favourite subject with the Phoenicians. This fine piece of sculpture may have adorned one of the gateways of Motya, as in the case of the "Lion Gate" at Mycenæ.

J. J. S. WHITAKER.

Central Africa : Ethnology.

The Mackie Ethnological Expedition to Central Africa.

Frazer.

By 90

Sir J. G. Frazer.

The Mackie Expedition, under the auspices of the Royal Society and the conduct of the Rev. John Roscoe, has spent about four months (from the end of February to the end of June, 1920) among the Banyoro, a large and important tribe or rather nation, which occupies the country to the east of Lake Albert in the Uganda Protectorate. The native king took a deep interest in the objects of the Expedition and did all in his power to forward them. Day after day for weeks together he granted Mr. Roscoe an interview of several hours and personally explained to him the secret customs of the tribe and the taboos observed by the kings. Thus the Expedition has been able to secure a large body of information authenticated by the highest authority.

The tribe comprises two distinct races, the Bahuma and the Bairu; the Bairu are a subject people of agricultural peasants, belonging to Bantu stock and descended from the original inhabitants of the country; while the Bahuma, a purely pastoral people akin to the Gallas, are a ruling aristocracy, whose ancestors invaded and conquered the country from the north. Though the two races have long lived side by side, they maintain their distinctive features and customs; intermarriage between them is comparatively rare, though not absolutely forbidden. The king belongs to the ruling aristocracy (the Bahuma). Yet, curiously enough, it was formerly the custom to appoint a temporary king every year from among the subject peasantry (the Bairu). This man represented the real king's dead father at the tomb of the deceased monarch. He enjoyed considerable honours: he used as his wives the widows of the late king who lived at the tomb: he sent his blessing to the reigning king and received presents from him: he blessed the country and sent presents of cattle to whom he would from the herds kept at the tomb; and he acted in general as he thought the late king would have acted if he had been alive. But after reigning thus for a week or eight days he was taken to the back of the tomb and strangled. In former times the real King of Bunyoro used to poison himself whenever he fell seriously ill or was wounded in battle, but this custom has long been obsolete. Nowadays in case of sickness the king calls in the aid of a medicine-man. If the medicine-man prescribes cupping for the royal patient, all the king's wives must be cupped at the same time and on the same part of the body; if the medicine-man prescribes blistering with a hot iron, all the king's wives must be blistered with a hot iron at the same time as the king and on the same part of the body; and they exhibit with pride their cuts or burns to their royal husband as so many indubitable proofs of their loyalty and affection.

The king is, or perhaps rather used to be, at the same time a high priest, daily interceding for his people and performing many ceremonies to increase the progeny of man and beast and the supply of food. He had his day marked out for him from morning to night, and he was guarded so that he went from one duty to another with the regularity of the sun. Certain officers were charged with the duty of reminding him of the time of day and of seeing that he performed his appointed tasks punctually. Hence, although he was in theory an absolute monarch, he enjoyed little real liberty, his life being spent in a monotonous round of ceremonial observances for the good of others rather than his own. Before he rose from his bed in the morning his great toes were anointed in a peculiar fashion on the under side by a young virgin, who always slept across the foot of his bed, because the king's toes might not touch the wood of the bed, nor yet be exposed during the night. The anointment was not a mere physical cleansing, it was a charm intended to ward off evil from the king. He might rise from his bed only

at one particular part of it, and at night he had to get into it at the same part. When at rising he went to his bathroom, two yearling bulls were brought to him, one of them black with a white forehead, the other red and black. Taking first the black one by the horns, he placed his own forehead against the forehead of the beast and prayed, saying, "Take away from me, O God, all evil magic and enemies." Then he laid hold of the red and black bull in like manner and prayed, saying, "Pour thy blessing on my country and my people." After the king had bathed and been invested with his amulets by one of his wives, two sacred cows were brought to him and milked with much ceremony. The man who milked these cows held up his hands as in prayer before applying them to the cow's udders, and during his term of office, which lasted only two days, he might not so much as look at a woman on pain of death. The king then retired to the dairy and drank the milk. While he drank in private, his wives in the other room fell on their knees and hid their faces, and all the people kept as still as death; any person who chanced to cough or clear his throat while the king was drinking would be hurried away to instant execution. After hearing and trying cases in the throne room, the king was reminded by the official time-keeper that it was now the hour for him to go and herd the sacred cows. This he then did with much ceremony in order to ensure a blessing on the herds of the whole country. In the afternoon, about half-past four, he was similarly warned that it was time for the royal meal. He then partook of sacred beef, but before doing so he gave a tap to each of the nine drums in the throne room. When the rumble of the drum was heard, there was silence throughout the whole of the vast royal enclosure, all the people cowering and covering their faces, wherever they might be. The royal cook then came, purified, carrying a special fork, while his servant bore a pot of meat. The king sat on his throne, and the cook knelt before him and put four pieces of meat into the king's mouth, taking care not to let the fork touch the royal teeth, because to let it touch them was a crime punishable with instant death. After the king had partaken of the meat, the sacred cows were again brought, and the king drank milk as in the morning. During the early part of the night he wandered about his enclosure, and invariably went at a late hour to see whether the guard were being kept. If he found a sentinel asleep at his post, he might pin him to the earth with his spear. From the time of his accession the king seldom, if ever, went abroad; his duties in the royal enclosure kept him too busy to allow him to think of undertaking a journey, and from want of exercise he grew so indolent that he lost even the wish to travel.

The king generally indicated in his lifetime the son whom he wished to succeed him, but sometimes the claim of the heir apparent was disputed by one or more of his brothers. The dispute was always settled by the ordeal of battle, and the son who killed his brother, or brothers, succeeded peaceably to his father on the throne with the acquiescence of the other princes and people.

The new moon was greeted with great ceremony in the royal enclosure, the royal band playing incessantly day and night for seven days, with only very short intervals for rest and refreshment. As soon as the appearance of the moon was formally announced to the king, a man was caught and taken away secretly, and his throat having been cut his blood was used to smear on the royal fetishes. Human sacrifices were offered also in connection with the salt pans situated near Lake Albert. Every year the king used to send offerings to the spirits of the salt pans, not only for the increase of the salt, but for the general good of the country and the increase of man and beast. The offerings consisted of a slave woman, two cows, and a white sheep. The sheep was thrown into a pool near the salt pans, then taken out and ferried in a canoe a mile or more out on the lake, where it was drowned. The

slave woman was married to the local priest of the salt pans, or to one of his staff; and the first child she bore to her husband was sacrificed to the spirit of the pool, its throat being cut on the margin of the pool and the body thrown into the water. A black goat was also thrown into another rocky pool, higher up the stream, and after being allowed to swim about in the pool all night, it was taken out and killed, and its flesh furnished a sacrificial meal, the participants in which were supposed thereby to enter into communion with the Rock God. These offerings were believed to increase the supply of salt in the salt pans.

The ruling class of Bunyoro, as we have seen, are all pastoral people, and have large herds of cattle, which are their only care and for which they live. Theoretically all the cattle belong to the king, who is deemed something more than an ordinary man with power both on earth and in heaven. But apart from this general right over all the cattle of the country, the king has his special herds, which may number thirty or forty thousand cows; for even a private man who owns only a thousand head of cattle is not thought very wealthy. The kraal, with its cattle, is the centre of life to the ordinary man of the ruling race in Bunyoro; it contains everything he considers essential for existence. The cows furnish all he requires for food, and their surplus milk goes to furnish all he wishes to buy, such as salt and spears. The skins of the animals provide him with clothing. The whole land is open to him to settle where he pleases with his flocks and herds; only superstition sets bounds to his choice, for before he can settle in a place he must consult the oracle, or in other words the medicine-man, who determines whether the omens are favourable before he approves of the new home. When the new kraal is ready, the owner brings fire from the old one and lights the sacred fire in the centre of the new kraal; this fire is henceforward kept constantly burning. The huts of the owner and his dependents are built in a circle round the cattle kraal; but should evil omens occur during the first four days after the occupation of the new kraal, the place is deserted.

With regard to the skill of these people in breeding cattle, Mr. Roscoe writes as follows:—"During the past three months I have been engaged in investigating these cow customs, and find the people have the most wonderful knowledge of cows, and feel sure they would be able to turn this country to profitable use with encouragement and assistance from the British. Without any aid or science they have gained extraordinary insight into disease and the care of cattle, performing wonderful operations to save cows during cross birth when calving or in other circumstances of accident. With a little training they would become expert cowmen and supply European markets with meat, as well as sending butter and cheese."

The agricultural people, known as Bairu, are treated by the pastoral people (the Bahuma) as their slaves. They seem to belong to a very inferior race and to have been only slowly raised to a higher level of culture through the influence of the pastoral people living among them. For long the Bahuma avoided intermarriage with them, but in course of time such of the subject race as gained wealth by their superior intelligence, were raised by the king to the rank of freemen and allowed to marry Bahuma women; they might even become chiefs. When they clear land for cultivation, the men cut down the trees and burn the grass and reeds, but put aside the fallen timber to be used as firewood. The ground thus prepared is dug by the women, who then plant sweet potatoes or sow maize or beans. At sowing semsem a woman has to observe many superstitious rules. She must refrain from sowing if the omens are bad; she must keep the fire burning all the preceding night, for a dying fire would portend dying seed. "When the seed is sown she returns home and cooks the evening meal, and that night the husband has sexual

"connection with her to make the crop grow." When the crop is ready, the wife prepares a little of the food for her husband first, and "after eating the first fruit he must have sexual relations again with his wife to ripen the fruit." The main crop raised by these people is a small grain which they call *bulo*. The husband assists his wife at sowing it, but the reaping is chiefly done by the women. When the grain has been threshed by the women, most of it is stored in underground granaries, which are pits from six to eight feet deep and covered over so that only the owner knows where they are situated; some natural feature, such as an ant hillock or a tree, serves as a landmark to guide him to the spot when he wishes to draw on his store. Only a little of the grain is kept in the house, lest it should be lost through fire or in war. Peas and beans are grown in quantities and eaten; plantains and millet are cultivated for making beer. Agricultural people eat honey, but pastoral people eat it only in secret, because they think that they might injure their herds by eating what the bees have gathered from various kinds of plants and dead animals.

Sheep and goats are kept both by the agricultural and pastoral people, but not so much for the sake of their flesh as for ceremonial purposes. For example, goats are often used by medicine-men to exorcize ghosts, especially from women with child or from women whose children have died prematurely. Again, fowls are kept both by the peasants and the pastoral people, but not for the sake of their eggs or their flesh, neither of which is eaten by the agricultural people; on the other hand, fowls are constantly wanted by medicine-men for the consultation of the oracle.

In regard to marriage the king was expected, or rather required, on his accession to marry one of his half-sisters, a daughter of his father by a different mother. The half-sister thus married became the queen. The king might not raise to the rank of queen one of the wives whom he had married before his accession. The queen lived in a separate enclosure of her own near to that of the king. The princesses, with the exception of the one who became queen, were never allowed to remarry, but were spoken of as men and treated as princes. Yet they enjoyed great liberties and are known to have had their favourite half-brothers, and few of them were pure. Even the queen is apparently forbidden to bear a child, for should she find herself pregnant she takes a drug which causes abortion. But the king has other wives beside the queen, and it is they who give birth to princes and princesses. Yet so many risks and dangers attached to the position of a king's wife that few parents coveted the honour for their daughters, and most of them did all they could to evade it.

Among the ordinary Bahuma or pastoral people children are usually betrothed in infancy. They may be neighbours and play together without any knowledge of their future relation to each other until they are old enough to marry. At marriage a number of cows, usually from ten to twenty, are presented by the parents of the bridegroom to the parents of the bride. The bride, who has been fattened up for the ceremony by copious draughts of milk, is carried veiled in a litter to the bridegroom's house. She is accompanied by a paternal aunt, who stays with the newly-married couple any time from two days to a month and shares their bed; nay, if the bride is young and timid, it is her aunt's duty to supply her place in the arms of the bridegroom. Among the agricultural people, on the other hand, by a curious variation of custom, it is the maternal aunt who accompanies the bride to the house of the bridegroom; she stays only one night, occupying a separate bed, and when she departs next day she leaves a younger sister of the bride to keep her company for a month or more. In either case, on the morning after marriage the aunt washes down bride and bridegroom four times from head to foot with a bunch of purificatory herbs. This is said to wash away any youthful ills and to

permit the young couple to begin married life without any stain. Among the pastoral people an important part of the marriage ceremony is the drinking of milk by bride and bridegroom from a special wooden pot, which is handed to them by the bridegroom's mother. The milk must be drawn from a cow whose calf is alive; for if it were drawn from a cow which had lost its calf, they believe that the couple would have no children.

Among the agricultural people the practice of betrothal in infancy appears not to be in vogue. When a young man is old enough to marry, he chooses his wife or leaves the choice to his parents. An essential part of a proposal of marriage is an offering of beer to the bride's parents; if they accept it and drink the beer, the contract is regarded as sealed, but the bridegroom has to pay a bride-price to his wife's parents; it is usually a cow or a cow with two or more goats. On being conducted to the house of the bridegroom the bride is veiled with barkcloth and is generally carried. The marriage is not consummated on the first night, though bride and bridegroom are together and sometimes share the same bed. The bride's younger sister, as we have seen, remains with her for a month after marriage and often sleeps on the same bed. After the younger sister leaves the house and returns home, the husband of her married sister becomes taboo to her; she may not meet him or have any conversation with him. Among these agricultural people, whom the pastoral Bahuma regard as their slaves, a man may never meet his mother-in-law or speak to her face to face; if he must hold communication with her, he does so at a distance or outside the house in which she sits. If he meets her in the path, he retires into the grass and looks the other way until she has passed. Among both the pastoral and the agricultural people it is perfectly legitimate for any man of the husband's clan to have sexual relations with his wife; such intercourse is not looked upon as adultery. The husband may dissuade his wife if he happens to dislike the particular man, but he cannot accuse her of infidelity.

Among the pastoral people (the Bahuma), when a child has been born, the afterbirth is buried at the doorway of the hut, on the right side if the child is a boy, on the left side if it is a girl. The husband brings one of the principal logs which forms the gate and places it on the fire, and this has to be kept burning brightly during the first four days. It is considered essential that the fire should not die out during this period lest the child's life should also pass away with it; nor may anything be taken from the house, especially fire may not be taken, nor may any pipe or grass be lighted at this fire during the first four days. Formerly the legitimacy of a child was tested by laying the infant on the ground at the gateway when the gate was opened in the morning to let the cows out; if the cows trod the child to death, it was illegitimate, and if they did not, it was legitimate. This custom is now obsolete.

Among the agricultural people a pregnant woman has to observe a number of superstitious rules or taboos. For example, if a tethered animal crosses her path, leaving its rope over the road, she must step on the rope and not over it, for otherwise her labour will be hard. If she commits adultery by having intercourse with any man who does not belong to her husband's clan, the birth will be retarded and she or the child will die. Should a child be born feet first, it is deemed a very bad omen; but the disastrous consequences which would naturally follow from such a mode of birth may be averted by knocking a hole in a basket and passing the child through the hole head first, thus inverting the unlucky order and so annulling the evil omen.

The birth of twins is regarded as a special favour of God and is the occasion of various ceremonies. The front door is closed, and a new door cut at the back of the house, if there was not one there before. The drums are beaten and dancing

is kept up till late at night. The parents are particularly glad if the twins are of different sexes, for then they think that father and mother have been equally favoured by God. The happy father is allowed to announce his felicity to his own father but not to his father-in-law, the maternal grandfather of the twins. To convey the intelligence to his father-in-law he makes emblems of the twins, ties them up in a parcel, and gives the parcel to a friend to convey to his father-in-law. The friend must be an active man and a good runner, for, curiously enough, he is liable to be ill-treated and even mauled ; nay, he was formerly liable to be killed by the exasperated grandfather if he succeeded in catching the unlucky messenger. So the messenger proceeds cautiously. He enters the house with a nonchalant air and engages in general conversation as if nothing particular had happened. While thus diverting the attention of his hearers from the real object of his visit, he slips the precious parcel unobserved into a corner ; then, retreating from the house to a safe distance, he breaks the glad tidings by shouting, "Your daughter has twins ! " With that he bolts at the top of his speed, hotly pursued by the irate grandfather, and it entirely depends on his fleetness of foot whether he escaped with a whole skin from the discharge of his delicate duty.

Four or five months after the birth of twins a great festival is held in their honour. The day chosen for the ceremony must be one when the moon is waxing. The relatives, both of the father and of the mother, assemble, each family bringing its medicine-man. During the night there is much noisy dancing and much making of magic. The aim of each family is to avert any evil that may attach to the twins and to transfer it to the other family. If the twins are boys, the mother's family makes strenuous efforts to ward off the evil and disgrace which such a birth reflects on themselves ; and if the twins are girls, it is for the father's family to vindicate themselves from the suspicion of being under the ban of the higher powers. This rivalry leads to open hostility between the two families ; sometimes it ends in a free fight and broken limbs. With the dawn of day, however, hostilities cease, and both families dance in harmony round the twins and their placentas, which are laid together on the ground. After a time the placentas, and afterwards the cut hair and nails of the twins, are carried in procession into the forest and deposited there in a place where they will not be disturbed. The parents of the twins must complete the festivities by having sexual intercourse with each other ; for otherwise it is believed that the expected blessing would be lost.

When one of the king's wives bears twins, the ceremonies are similar, but still more elaborate. When the time comes to exhibit the royal twins in public two sacred trees are planted, and the twins and their afterbirths are set on the ground between them. Then the two parties—the party of the king and the party of the mother of the twins—dance round the sacred trees and the twins. Afterwards the mother carries the two afterbirths in procession to the forest and deposits them there ; then the whole party dances round them. And every month, when the new moon appears, the nurse takes the twins and dances with them round the sacred trees which were planted soon after their birth.

The birth of triplets is regarded with horror as portending fearful calamities. The king sends his troops, who seize the mother with the infants and her parents, carry them away to a desert place, and spear them all to death, leaving their bodies to be devoured by wild beasts. The father of the triplets has his eyes gouged out to prevent him from harming people by his gaze.

Amongst the pastoral people (the Bahuma), when a man falls sick, and the sickness does not yield to ordinary treatment, a medicine-man is called in. He may pronounce that the patient is possessed by a ghost. In that case the doctor has to decide whether the ghost in question is a malevolent ghost intending the destruction

of the patient, or whether it is the ghost of a member of the same clan as the sufferer. The treatment naturally differs according to the diagnosis ; for if the ghost is that of an enemy, he must be captured and destroyed, whereas if he is the ghost of a fellow clansman he must be treated with more consideration and induced to transfer his attentions to some other person or animal. The transference is commonly effected as follows. A goat is brought, a male goat for a male patient, and a female goat for a patient. The animal is tethered by the foot to a peg near the patient's bed : a cord is stretched from the goat to the sick man or woman ; and the ghost is requested to pass from the body of the patient into that of the animal, which is presented to him as a freewill offering. The ghost is given the night to think it over ; next morning he usually closes with the offer and passes into the goat, which henceforth is sacred to him and lives near the bed.

When the sickness is caused by a hostile ghost, the medicine-man prepares a pot of savoury meat and sets it near the patient's bed ; then shaking his rattle he chants an invitation to the ghost to come out of the man and eat the meat. Tempted by the savoury smell, the ghost inadvertently accepts the invitation and enters the pot. No sooner has he done so than the medicine-man claps a skin on the pot, smears clay over the skin by way of sealing it up, and then carries the captured ghost to waste land and burns him to death. Or he may drown the ghost by throwing the pot into running water ; but this mode of treatment labours under the serious disadvantage that the pot may break and allow the ghost to escape and return to the patient.

Should the medicine man declare that the sickness is caused not by a ghost but by magic, he may resort to a variety of means for counteracting the evil influence. For example, a tree of a certain sort or, failing that, a stout reed, is planted in front of the house where the sick man is lying. Then the medicine-man kills a goat, catches its blood in a bowl, and smears some of the blood on the sick man, who has been brought out of the house for the ceremony. Some of the blood is also put on the tree and sprinkled on the assembled family. Next the trunk of the tree is split from top to bottom ; the slit thus made is held open, and the patient passes through it and returns to the house without looking behind him. Sometimes a second goat is secured between the tree and the house, and as the sick man passes it, he lays his hands on the animal's head. Then the goat is driven through the split tree in the reverse direction to that followed by the patient. Afterwards the animal is taken away by the medicine-man and kept alive ; it is supposed to retain whatever is left of the sickness which was caused by the magic, but which has been thus transferred to the goat.

If all remedies prove unavailing and the man dies, his body is commonly buried. If he was the owner of the kraal, the grave is dug in the deepest part of the dunghill so as to reach down to the earth, but not to penetrate it. The body, with the legs bent up under the chin and the hands placed together under the right side of the head, is laid at sunset in the grave on its right side, so as to look into the kraal. All who take part in the funeral wash themselves by the grave and have their heads shaved and their nails cut. The cut hair and nails are laid on the grave, and the water with which the mourners washed themselves is also poured on the grave. Afterwards all the pots and vessels in the house are brought out and set before the door ; such as have any flaws are put aside and cast upon the grave, the rest are kept to be purified. Then the sister of the heir comes and is given a pot of pure water mixed with white clay. She takes two bunches of purificatory herbs, dips them in the water, and sprinkles the whole family, and such of the p'ts as are to be preserved. After that ceremony the heir receives the congratulations of his friends on succeeding to the property. In former times the heir might marry

any of his father's widows except his own mother, unless the widow preferred to return to her family, in which case her family had to refund the value of the property originally paid for her by her deceased husband. If the dead man had no kraal of his own, he is buried by his relatives anywhere in the open; if he has no relatives to perform the last offices for him, his body is simply cast out into the grass and left there to be devoured by wild beasts. The agricultural people bury their dead in their gardens and plant trees round the grave to prevent children from walking on it.

From Masindi the Expedition, quitting Bunyoro, passed eastward to Soroti, a Government station near the north-eastern arm of Lake Kioga; thence it proceeded through the Teso country to Mbale on the lofty Mount Elgon, which lies on the border of the territory known till lately as British East Africa. On Mount Elgon the Expedition was able to make some further inquiries among the cannibal Bagesu, whom Mr. Roscoe had visited before and described in his book *The Northern Bantu*. In particular Mr. Roscoe was fortunate enough on the present occasion to witness a remarkable tribal ceremony of circumcision, which he will describe fully in his final report. From Mbale the Expedition proceeded northward some forty miles to Sebei, from which the latest report, dated August 8th, 1920, was sent to the Royal Society. Among the Basebei totemism appears to be in a state of decay; the clan system is now used by them chiefly to regulate marriage. From Mount Elgon it was Mr. Roscoe's intention to pass northward into Karamojo in order to investigate the Turkana, a tribe about which comparatively little is known. Unfortunately this scheme has been frustrated by the military operations now being carried on in that region, which, in addition to the other inconveniences they create, by exasperating and harrying the natives, render all scientific inquiries among the people futile. Under these circumstances Mr. Roscoe proposes to move from Mount Elgon into Busoga in order to complete the inquiries which he made among the Basoga a good many years ago. From Busoga the Expedition will return to Bunyoro, where it is expected that the native king will furnish some fresh information, which at the recent departure of the Expedition he was prevented by ill-health from supplying. From Bunyoro the Expedition will then start on the homeward journey down the Nile.

J. G. FRAZER.

Obituary.**Brabrook.****A. L. Lewis.** By Sir E. Brabrook.**91**

Mr. Alfred Lionel Lewis was the son of a well-known instructor in the art of handwriting, and was himself a chartered accountant of distinction. He joined the Anthropological Society of London in 1866, and specialised in the study of stone monuments. He interested himself also in many subjects submitted to the Society and frequently joined in its discussions. He was one of an independent Committee appointed in 1868 to report on the condition of the Society. He attended several of the international congresses of prehistoric archaeology, from that of Norwich in 1868 where he read a paper on the Sarsden Stones of Berkshire, in which he took up the position that stone circles were primarily places of worship and that their use as places of sepulture was subsidiary. He visited Locmariaker and Gavr' Inis, and reported his observations to the Society. In 1869 he contributed to the British Association, at its Exeter meeting, a paper on the builders and the purposes of megalithic monuments, which he revised and published in the *Journal of Anthropology*.

He was elected a member of the Council of the Society in 1869, and appointed a delegate to the Liverpool meeting of the British Association, before which he read a paper on the builders of megalithic monuments in Britain. He became a member of

the Association in the same year, and was in due course elected on its General Committee. He thus lived to see the jubilee year of his membership of that body. He served for many years on the Corresponding Societies Committee and on various research committees, and contributed to the Association many papers on the subjects which he had made especially his own. Upon the formation of the Anthropological Institute he continued his valuable services. Two papers by him were read in its first year, and at the Annual Meeting he was re-elected on the Council.

It will be remembered that all went well until the beginning of 1873, when a number of Fellows of the Institute formed the London Anthropological Society. Mr. Lewis became the Honorary Secretary of the new body, and for a time transferred to it his energies and his original contributions, which will be found in *Anthropologia*, of which one volume only was published.

The supplement to that volume records the final proceedings of that Society, which died out at the end of 1875. Mr. Lewis had, however, attended and spoken "as a visitor" at meetings of the Institute in January and February, 1874. On his desiring to rejoin the Institute, he was welcomed back, and was again elected a member of the Council in 1876. From that time to the end of his life his interest in the work of the Institute and his contributions to its proceedings were continued with unabated zeal. In 1878 he called attention to the evils arising from the use of historical national names as scientific terms.

In 1886 he was elected treasurer of the Institute, and in that capacity administered its finances for 17 years with conspicuous success. In the years 1905 to 1907 he was elected Vice-President. On several occasions he served as the representative of the Institute at the congresses of the Prehistoric Society of France, and his acquaintance with the stone monuments of France was almost as intimate as his knowledge of the stone

monuments of this country. He made many friends among the French anthropologists, who will greatly regret him. His papers, which were numerous, were generally illustrated by sketches drawn from his own accurate measurements; and he made skilful models of many of the stone monuments he described. In recent years he lived at Wallington, where he delivered popular lectures on the subject with which he was so intimately conversant. He died there on October 22, 1920, aged 78, and the Institute was represented at his funeral on the 28th of that month. His death is a heavy loss to the Institute; to myself it is the loss of an old friend whose goodness of heart, independence of judgment, kindliness and loyalty, earned my admiration and esteem.

E. BRABROOK.

West Africa.

Thomas.

Sudanic Names for the Domestic Fowl. By N. W. Thomas.

92

Sir H. H. Johnston in his preface to his Bantu work again lays stress on the fowl argument. I am far from denying its importance; but in implying that the root **kuku* is purely Bantu he is going beyond the facts. The following words prove it:—

Edo, *oxoxo*; Okpe, *okoko*; Wepa, *oko*, Ajeyubi Sobo, *oxo*; Agbede Kukuruku, *ogoko*; Ewe, *koklo*; Ibo, *okoko*; Ibibio, *akiko* (cock); Yoruba, *akuko* (*id.*); Twi, *akoko*. Cf. Kana, *koñ*.

With these may be compared: Abua, *akenek* (cf. Akinakuna, *ikogo*, *meko*); Ijo, *oboko*; Temne, *atoko*. These forms are so closely related to Bulam *sok*, Yalunka,

toxena (cf. Kisi, *so*; Gola, *tg*) that positive evidence is needed before we speak of *kuku* as a purely Bantu form.

As to the Nigerian forms, it seems by no means improbable that they are due to Bantu influence; it looks as if Bantu has assimilated tribes north of the Congo, and pushed forward through south and central Adamaua; then followed a Sudanic reflux from north and east. It would not be surprising if the Bantu push into Adamaua was accompanied by westerly off-shoots, especially as the area is far more open, geographically speaking. It does not, therefore, follow that the facts cited here invalidate Sir H. H. Johnston's argument; but the Twi and S. Leone forms noted certainly demand some treatment before they can be dismissed as negligible.

How far the name is onomatopoeic is another question on which I will not enter, but *okoko* (Ijo), parrot, is important; a French child calls a fowl *koko*. The possibilities of convergence are shown by the word "yam," commonly supposed to be an American word, but actually in use in Africa before the discovery of America. Etymological bases for cultural theories are slippery ground. N. W. THOMAS.

Central Asia—Malta: Anthropological Expeditions.

Fallaize.

Anthropological Expeditions to Central Asia and Malta.

93

The *Times* of November 12th gives some interesting details of an American Expedition to Central Asia, which is being organised by the American Museum of Natural History in conjunction with the American Asian Society and the *Asia Magazine*. The expedition will be under the leadership of Mr. R. C. Andrews, Associate Curator of Mammals of the American Museum, and it is expected that its work will occupy about five years. Two years will be spent in investigating the palaeontology and zoology of China and Mongolia. The remaining three years will be devoted to the systematic exploration of the high plateau of Central Asia with a view to obtaining evidence on the question of the descent of man, and in particular on the place in human development of *pithecanthropus erectus*.

An expedition has been organised to investigate the physical anthropology of the ancient and modern inhabitants of Malta during the coming Christmas vacation. Some archaeological investigations will also be undertaken as ancillary to the main object of the expedition. The organiser and leader of the expedition is Mr. L. H. Dudley Buxton, the other members being Mr. A. V. D. Hort, Mrs. Jenkinson, Miss Moss and Miss Mond. The expenses of the expedition will be met in part by a grant from the Mary Ewart Trust, in part by a generous gift of £100 from Sir Alfred Mond.

E. N. F.

REVIEW.

McDougall.

Anthropology.

Anthropology and History. Robert Boyle Lecture. Oxford, 1920. By William McDougall, M.A., F.R.S. Oxford Press, 2s.

94

A welcome statement by an eminent worker of the claims of anthropology to assist in the discussion of cause and effect in history. The extravagances of Gobineau, the stupidity of Houston Stewart Chamberlain and the zeal of some more recent writers of broader outlook, have led historians to neglect anthropology; but McDougall reminds them that different human breeds are differently endowed at the present time and only a few can maintain a high level of civilization. He urges rightly that they have arisen from several older stocks but does not bring out sufficiently that among them in spite of free intermarriage different stocks persist side by side and contribute their different qualities to the betterment of the commonwealth. In Britain different breeds to some extent at least segregate toward different activities and so we supplement one another's deficiencies. McDougall

wisely insists that caste barriers are a grave hindrance to the enrichment of civilization and allows one to guess at his opinion that the marked differences of race which have contributed not a little to the Indian caste system have also thereby helped to wipe out Buddhist influences from that country. His approval, with reservations, of the social ladder system is interesting even if his reservations seem more weighty to others than they do to himself.

He hints at the racial divergence between Britain and France as an insufficiently recognised factor of their divergencies of historic evolution. The Nordic, we would say pre-Nordic to a large extent, stock counts for more in Britain than in France and its restlessness and intolerance of fixed control has been a potent factor of the British spirit of independence. He apparently thinks that the organising power so characteristic of the Alpine stock has helped to make France what it is. In making these suggestions he hints at the mistake made by Buckle, Boutmy, and even Maine, in finding causes of national character in recent events. He is partly right, but surely historic changes bring about great changes in the proportions of different breeds within a nation. It could be argued that gradually the Nordic stock has been displaced by the Alpine to a considerable extent in France, and that this process was accelerated after the unification of what we now called France. And it is especially from Richelieu onwards that the spirit of organisation and of protection has so marvellously dominated France.

A curious omission is that of any reference to questions of race prejudice, so marked a feature of North-Western Europe and so much weaker in France where geographical circumstances have worked for long centuries to synthesise the contributions of all the breeds of Europe (and some others) to civilisation.

One welcomes particularly McDougall's thoughtful tribute to Le Play as an anthropologist who really sheds light upon history. It is a pity that his French disciples did not show more care in carrying on his work, but that is all the more reason for taking him up afresh and our author has done so in his book on *The Group Mind* (Cambridge Press, 1920).

H. J. F.

ANTHROPOLOGICAL NOTES.

The Establishment of Reservations for the Aborigines of Central Australia. 95

During the last Session the attention of the Council of the Royal Anthropological Institute was called to the serious state of affairs among the aborigines of Central Australia. From information received from Australia, it appeared probable that these interesting tribes would become extinct at a not very distant date. The Council decided to lend its support to a movement which had already been initiated in Adelaide, and representations were made to the Federal Government and the Government of South and Western Australia, pointing out the desirability of establishing reserves in the Northern Territories, Western Australia and South Australia, on which the natives might be protected from contact with the deleterious elements in white and Asiatic civilization, which were mainly responsible for their present condition.

In reply to the representations made by the Council, the following communications have been received from the Federal Government:—

Commonwealth Offices,

Australia House, Strand, W.C.2.

DEAR SIR,

15th October 1920.

WITH further reference to your letter of the 26th of June, relative to a reservation for, and the preservation of, the aboriginal races of Australia, I have to inform you that I am now in receipt of a communication from the Home and

Territories Department, Melbourne, relative to the matter, copy of which is attached, together with a map showing the areas which have been reserved for the purpose stated.

Yours faithfully,

The Honorary Secretary,
Royal Anthropological Institute,
50, Great Russell Street, W.C.

GEO. J. HOGHAN,
Acting Official Secretary.

Home and Territories Department,
61, Spring Street, Melbourne,

The Official Secretary in Great Britain
of the Commonwealth of Australia.

24th August 1920.

(For transmission through the Prime Minister's Department.)

REFERRING to your memorandum of the 5th July, No. R. 401/1/10, covering copy of a letter from the Royal Anthropological Institute relative to the reservation of an area for the accommodation and preservation of the Aboriginal races Australia, I have to inform you that steps have already been taken for the reservation of the area shown in the attached map for the purpose of an Aboriginal Reserve.

*2. An area has been set aside by the Governments of South and Western Australia in adjoining parts of their States for the purpose of this reserve.

(Signed) ATLEE HUNT,
Secretary.

Office of the Agent-General for South Australia,
Australia House, Strand, London, W.C.2.

The Secretary,
Royal Anthropological Institute,
50, Great Russell Street, W.C.1.

5th November 1920.

DEAR SIR,

WITH reference to your communication of June last, I am directed by the Agent-General to inform you that he is advised by his Government that the question of setting apart an aboriginal reserve of about 42,000,000 acres in the vicinity of the borders of South Australia, Western Australia and the Northern Territory is being considered.

Yours faithfully,
(Signed) J. A. WHITING,
Secretary.

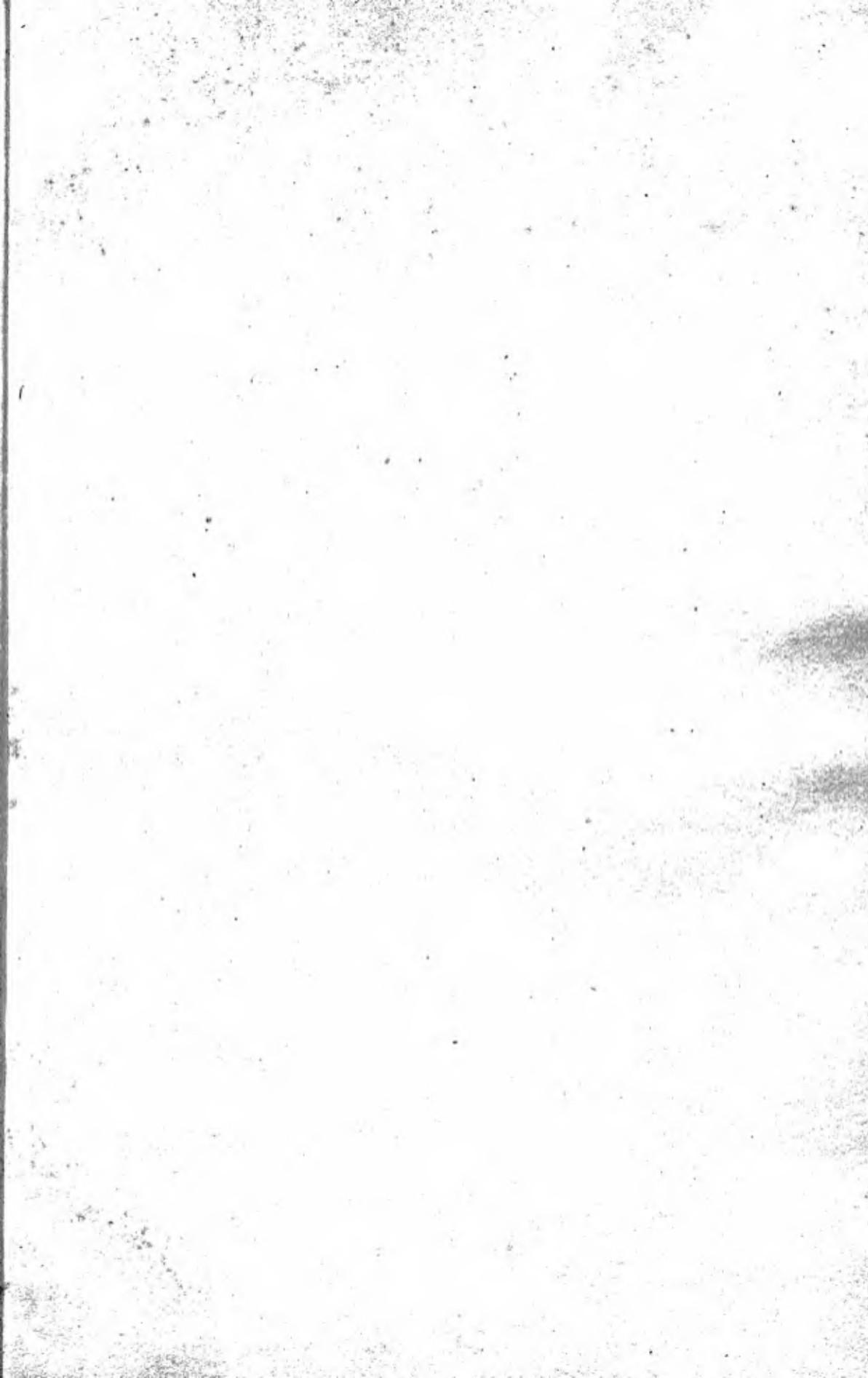
UNIVERSITY OF BRISTOL.—DEPARTMENT OF ANTHROPOLOGY.

A department of Anthropology has been established in the University under the Department of Anatomy, and students of the department who are undergraduates, and have fulfilled the necessary conditions, may include the subject of Human Morphology and Anthropology in the subjects for the Final B.Sc. Examination. 96

Miss M. A. Czaplicka, who has been appointed Lecturer in Anthropology, is at present organising the department, and giving a series of Preliminary Lectures in Ethnology, weekly.

Two lectures have already been given on Siberia and a third is to be given on the Turks in Central Asia.







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